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THE

Gardeners' Chronicle.

SATURDAY, JANUARY 1, 1898.

NOVELTIES OF 1897.

IT is interesting to turn over our notes of the new plants of the year that is past, as, in doing so many facts become evident which were only suspected at the time from cursory observation. On the present occasion, the most striking fact gleaned from a study of the records of last year is, that the hybridist, who of late years has been plodding on with increasing confidence, may be said to have at last fairly over-reached the importer, for in every department of gardening, the majority of the novelties are home-made productions, and the outcome of the skill and perseverance of the gardener himself. It is to be hoped, however, that the present taste for garden hybrids will not render the efforts of the plant-collector and importer too unremunerative an occupation to pursue, the hybridist himself being dependent to a great degree on the importer. But a review of the introductions of the past year shows that the number of new species of plants are very few, and their introduction to our gardens is not of much consequence, and that they are chiefly noticeable by reason of the fine varieties among them which have flowered, and have in many instances doubtless saved the importer from suffering a loss on an importation.

ORCHIDS.

This applies more especially to the Orchids, among which the hybrids and the phenomenal varieties seem mainly to rivet attention; and, commercially considered, perhaps the rarer varieties of imported species, such as the more beautifully blotched *Odontoglossums*, *Cypripedium callosum* Sanderæ, and similar things, hold their own against the hybrids, high though the prices asked for the latter may sometimes be. Certain it is that whenever any rare old species, which has disappeared from gardens for many years, flowers, it receives as much attention, and is as interesting now as ever; as, for example, one of the greatest novelties to present-day cultivators which flowered during the year is a very old plant, viz., *Grammatophyllum speciosum*, with its gigantic 7-foot inflorescence of large yellow and brown flowers borne above the Palm-like foliage of the plant, which flowered in the gardens of Sir Trevor Lawrence, Bart., at Burford Lodge, in August last, and was awarded the Gold Medal and a First-class Certificate of the Royal Horticultural Society. In the same famous gardens many plants of as great merit have bloomed during the year, and among the numerous hybrid Orchids may be mentioned the fine *Vanda* × *Miss Joaquim* (teres ×

Hookeriana), some good *Cypripediums*, of which the most singular-looking one is *C. × hirsuto-Sallieri*, a large, glossy, pallid flower, distinct in appearance; the pretty *Brasso-Catt. Lælia* × *Lindleyano-elegans* [*Phœbus*, what a name!]; and among the showy hybrid *Calanthes* raised at Burford, which graced the last meeting of the Royal Horticultural Society, some eight or nine new forms, of which *C. × sanguinaria*, with dark blood-red flowers; *C. × Burfordensis*, rich carmine-crimson; and *C. × Veitchi splendens*, received awards. There also flowered in this garden the natural hybrid *Cattleya × undulata*, and the pure white *Stenoglottis longifolia alba* was shown. Many new plants, of botanical interest, have flowered at Burford during the year, and an attempt has been made to establish the singular *Trevoria Chloris*, named in honour of Sir Trevor Lawrence by Mr. F. C. Lehmann.

Baron Sir H. Schroder is getting more careful about risking his fine plants in public, and hence the difficulty in doing justice to the many novelties which have flowered at The Dell, examples of which were, however, seen at the great International Horticultural Exhibition at Hamburg, and at that held in the Temple Gardens. *Odontoglossums* always take the lead, and among those from Baron Schroder's collection certificated in 1897 were the magnificent *O. Wilckeanum* var. *Queen Empress*, which for size of flower, richness of the clear yellow and reddish-brown tints, excels all in its class; as does the fine, large, white *O. crispum magnificum*, also shown at the Temple in its own section. *O. prestant* *Dayanum*, also belonging to The Dell collection, is a charming white and cinnamon-brown flower; *Cœlogyne Dayana*, "The Dell var.," a great advance on the type form; and *Cattleya Loddigesii superba*, the finest example of its kind. Several cross-bred *Calanthes* and other Orchids have flowered at The Dell, but none surpasses the robust, handsome, and richly-coloured *Calanthe* × *Baron Schroder*.

Most of our important amateur collections have produced good things during the past year. From the Right Hon. Joseph Chamberlain's garden towards the latter part of the year there have been exhibited groups of good plants, either raised at home, or specially well-grown plants of the productions of others. Of the former, *Cattleya* × *Mrs. Endicott* (*maxima* × *Loddigesii*) has charming flowers, with the pretty purple veining seen in the lip of *C. maxima*; and of the latter, *Cattleya* × *Fabia*, and Mr. Cookson's *Lælio-Cattleya* × *Clive*, appeared in better form than they had ever been seen before.

The Hon. Walter Rothschild, who is great in "botanical" Orchids, has flowered several extraordinary *Bulbophyllums* and *Cirrhopetalums*, of which the wonderful *B. Ericssonii*, and the rare *B. megalanthum* may be noted. Also the new crimson *Mormodes badium*, and its clear yellow form *luteum*, and the pretty hybrid *Cypripedium* × *Enid* (*bellatulum* × *Spicerianum*).

R. Brooman-White, Esq., of Garelochhead, a specialist in *Odontoglossums*, has received the Royal Horticultural Society's awards for three grandly spotted forms of *O. crispum*, viz., *O. c. heliotropium*, *O. c. Starlight*, so much admired at the last Temple Show, and *O. c. Sunlight*.

W. Thompson, Esq., of Stone, another admirer of the *Odontoglossums*, showed the beautiful *O. excellens*, Thompson's var.; *O. sceptrum aureum*, *O. crispum Annie*, and *O. Ruckerianum ocellatum*.

Fred Hardy, Esq., Ashton-on-Mersey, has to be credited with three very fine novelties; viz., *Cattleya Schilleriana*, Hardy's variety, the largest and best of the species; *Cattleya* × *Hardyana magnifica*, and the nearly white *Lælia pumila albens*.

Norman C. Cookson, Esq., from his abundant collection at Wylam, flowered the very singular looking *Lælio-Cattleya* × *Jnno* (*C. Mossiæ* × *L. majalis*); *Cypripedium* × *Nansen* (*selligerum majus* × *Morganianæ*); and *Phaius* × *Norman* (*Sanderianus* × *tuberculosis*), which excels the fine *P. × Cooksoni*, for a specimen plant of which Mr. Cookson was awarded a Silver Flora Medal at the Royal Horticultural Society last year.

De B. Crawshay, Esq., also a lover of *Odontoglossums*, has found favour with the very handsome *Odontoglossum crispum*, Mrs. De B. Crawshay, the large yellow purple-spotted *O. Andersonianum Bogaerdianum*, and the brilliantly tinted *Lælia-anceps* Mrs. De B. Crawshay.

Joseph Broome, Esq., of Llandudno, flowered *Cattleya Warscewiczii gigantea* fine in colour, and one that holds the record in size, viz., more than 11 inches across without unfair manipulation; and the handsome *Lælio-Cattleya* × *Broomeana*.

Elijah Ashworth, Esq., Wilmslow, received awards for the handsome *Lælia purpurata* Mrs. E. Ashworth, with broad rose-veined petals; the pearly-white *Cattleya Warscewiczii* Mrs. E. Ashworth, *Lælio-Cattleya* × *elegans Schroderiana*, and one of the first hybrids of *Cypripedium Chamberlainianum*, i.e., *C. × Haynaldochamberlaini*.

Thos. Statter, Esq., showed among other good things *Cypripedium* × *Conco-bellatulum*; the handsome *C. × Rolfei*, and *Dendrobium Victoria Regina*, the blue *Dendrobe*.

G. W. Law-Schofield, Esq., in *Lælio-Cattleya* × *Tyntesfieldensis* staged at the Temple Show, had one of the best things of its class.

R. I. Measures, Esq., of Camberwell, one of the best Orchid growers in the neighbourhood of London, made a good show with the noble *Cypripedium* × *Chapmani magnificum*; the rose-pink veined *Lælia purpurata* Mrs. R. I. Measures; a violet-tipped *Rhyncostylis coelestis*, Cambridge Lodge variety; *Lælio-Cattleya* × *Andreana*, and *Miltonia* × *Peetersiana*.

Messrs. J. Veitch & Sons, Ltd., of Chelsea, again take a leading place for the fine quality and quantity of the plants they bring out. The number of their novelties that flowered during the year is so great that we are compelled to confine our remarks to those which have received the Royal Horticultural Society's awards. Of these specially acceptable are the number of autumn and winter-flowering *Cattleyas* and *Lælio-Cattleyas* which it has been Mr. Seden's special endeavour to produce. Thus, in the last four months of the year we find of Messrs. Veitch's plants that were certificated *Cattleya* × *Empress Frederick* var. *Leonata* (*Mossiæ* × *Dowiana*), a richly-coloured form of the original white-petalled variety; *Cattleya* × *Melpomene* (*superba* × *Warscewiczii*), a very showy hybrid, and, like that previously named, very fragrant; *C. × Melpomene* (*Mendeli* × *Forbesii*), and *C. × Olivia* (*intermedia* × *Trianaei*), both of moderate size, but having very distinct features; *Lælia* × *Olivia* (*xanthina* × *crispa*), a pretty flower with yellow sepals and petals; and several fine hybrids of *Lælia Perrini* have been shown which are very desirable by reason of the brightness of their flowers.

In February the handsome *Lælio-Cattleya* ×

Violetta (C. Gaskelliana × L. purpurata) flowered; and at different periods throughout the year *Lælio-Cattleya* × *Digbyano-Trianæi*, a close rival of L.-C. × *Digbyano-Mossiae*, and now in Sir Frederick Wigan's collection; L.-C. × *Eudora superba* (C. Mendeli × L. purpurata); L.-C. × *Canhamiana albida* (L. purpurata var. × C. Mossiae); *Dendrobium* × *Ainsworthi intertextum*, with primrose-yellow flowers, and purple disc to the lip; *Spathoglottis* × *aureo-Veillardii*, a perfect gem, with yellow flowers, charmingly marked with crimson; *Phalenopsis* × *Hebe* (*Sanderiana* × *rosea*), a fine companion to P. × *intermedia Portei*; *Zygopetalum* × *Perrenondii superbum* (intermedium × *maxillare Gautieri*), with vivid dark blue labellum; *Cypripedium* × *Aeson giganteum* (insigne × *Druryi*), C. × *minos magnificum* (*Spicerianum* × *Arthurianum*), and other good *Cypripediums*. Of special interest are the derivatives from hybrids of *Epidendrum radicans* raised by Messrs. Veitch, and which disclose unaccountable leaning towards that species, even when the seed-bearing plant has been of totally different growth and flower. Of these are *Epikelia* × *radico-purpurata* (L. purpurata × E. radicans), *Epicatleya* × *matutina* (C. Bowringiana × E. radicans), and *Epidendrum* × *radico-vitellinum* (*vitellinum* × *radicans*), all in some degree bearing resemblance to the fine scarlet *Epiphronitis* × *Veitchii*.

(To be continued.)

CANNAS.

THE "ITALIAN" OR "ORCHID-FLOWERING" CANNAS. —No race of ornamental plants in recent years has awakened such a wide-spread interest at its introduction as the new and distinct type variously known as "Italian," "Orchid-flowering," or "giant-flowering," Cannas. The first variety announced was *Italia*, produced by Mr. Sprenger, of the firm of Dammann & Co., in Italy.* The variety *Austria* followed soon, however, and these have now been widely disseminated.

It was a remarkable coincidence that, at almost precisely the same time when these strange varieties were produced in Italy, Mr. Luther Burbank of California should have produced the variety Burbank very much like them, and by crossing the self-same parent forms! This peculiar race thus had two perfectly independent though simultaneous origins. The most striking and important characters of these new Cannas are these:—Blossoms of immense size, often from 5 to 6 inches in diameter (some of the advertisements say 7 inches and more, but this is improbable); flowers broadly opened; the petal-like staminedia very broad and full, giving a flower of magnificent form hitherto quite unapproached in Cannas; usually much-reflexed corolla lobes; peculiarly rich and clear colours; an unfortunate softness and fragility of the blossoms which, in our climate, seldom spares them for an entire day; large, broad, tough, *Musa*-like foliage; generally tall growth.

The breeding of this race is somewhat remarkable. The so-called "French dwarf" Cannas, which have become so popular in America in recent years, have been crossed and hybridised "in and in" until all the possibilities of the several parent species have become quite exhausted. In this condition an out cross with a species not before used was the evident part of wisdom. This out cross was made, both in Italy and California, upon the well-known variety *Madame Crozy*, and with the pollen of *Canna flaccida*, a species growing wild in the southern United States.

The soft, evanescent blossoms of *Canna flaccida* have been imparted to all the crosses thus far secured, but the race has been distinctly re-invigorated, and there have been developed striking and desirable characters till now unknown.

It would be of considerable theoretical and practical consequence could we, in this connection, know the full pedigree of *Madame Crozy*, the seed-bearing parent in these crosses. Unfortunately, this pedigree is only a matter of speculation, and seems likely to remain so. The general opinion among students in this branch of horticulture, seems to be that there are two groups of the "French dwarf" Cannas, the red-flowering ones, including *Madame Crozy*, having originated by crossing *Canna Ehemanni* with *Canna Warscewiczii*, while the yellow-flowering varieties are thought to have sprung from crosses of *Canna Ehemanni* with *C. glauca*.* If this view is taken of the origin of the "Orchid-flowering" Cannas, their complete pedigree will be approximately expressed in the diagram.

Antoine Crozy, the originator of *Madame Crozy*, and many leading varieties of that class, is, however, quoted in a recent interview as saying that he began by crossing *Canna Warscewiczii* and *C. nepalensis*, and that his yellow-spotted varieties were secured by subsequent crossing with *C. aureo-picta*, which is probably a horticultural form of *C. indica*, the old-fashioned "Indian shot."

This station has found opportunity in its greenhouse and on its ornamental grounds to grow several of the new "Orchid-flowering" varieties, and to compare them in flower and foliage with the best of the older standard varieties. Our opinion of them is, in general, that the varieties thus far introduced cannot become so widely useful as the "French dwarfs," and that they in no sense supersede the older varieties; that they are nevertheless a highly valuable addition to the list of ornamental plants; that they will be abundantly attractive to flower lovers, and useful to plant breeders as the basis for further crosses. We are especially pleased with the form of the flowers, which is peculiarly full, graceful and satisfactory, and with the colours, which have a velvety richness rarely equalled in nature or in art.

The following varieties have blossomed on our grounds, and the descriptions represent the plants as they develop here. We have several other varieties which have not yet blossomed:—

"Orchid Flowering" Cannas, <i>Italia</i> , <i>Austria</i> , <i>Burbank</i> , &c.	{ <i>C. flaccida</i> . <i>Madame Crozy</i> . <i>C. Warscewiczii</i> .	{ <i>C. Ehemanni</i> . <i>C. Warscewiczii</i> .	<i>C. iridiflora</i> .
			<i>C. Warscewiczii</i> .

Italia.—3 to 4 feet high, foliage broad, bright glaucous green; flowers very large, exceptionally well opened, with very broad and gracefully rounded staminedia (looking like petals); colour, a bright canary yellow, with dark cherry-red filling the centre, and running out in blotches upon the petal-like staminedia.

Austria.—Plant like *Italia*; flowers lemon-yellow, lighter than *Italia*, marked only with faint dots of pink in the throat. The flower does not expand so well as in *Italia*, and the form is not quite so good; but the colouring is very delicate and desirable.

Burbank.—Plant like *Italia*; flowers large, much like *Italia* in form, and like *Austria* in colouring; rich canary-yellow, with light red dots and markings in the throat.

America.—Foliage dark bronzy-red, with irregular dashes of dull green; flowering stem tall; flowers of the form and size of *Italia*; brilliant apricot-red, faintly spotted with darker salmon; the centre is canary-yellow, marked with the apricot-red of the body colour. The blossoms of this variety, in our opinion, exceed in richness of colouring any of the others which we have seen.

Professor Waugh, in *Tenth Annual Report, Vermont Experiment Station*.

* In this connection the following extract from a private letter from the eminent horticulturist, M. Henry L. de Vilmorin will be of interest:—"It is the current belief in this country (France), and it seems confirmed by experiment, that the new breed of floriferous Cannas (i.e., the 'French dwarfs'), originated by the crossing of *Canna Ehemanni* with *C. Warscewiczii* and with *C. glauca*, the former producing the red flowers, and the latter specially yellow-flowered varieties. Both original crosses intercross readily, and in latter years I have had many crosses made every year, and raised and named several dozen new seedlings using the best varieties of my own and Crozy's raising, without introducing new blood into the breed."

KEW NOTES.

THE DATE PLUM.—This plant has fruited in the succulent-house at Kew annually for the last five years. The fruits are as large as a Valencia Orange, and coloured bright orange-scarlet—a colour they assume about September. The fruits usually hang on the plant till about Christmas—long after the leaves have fallen, and are most palatable when bletted, like the Medlar. The plant is planted out in the gravelly border of the house among the Agaves, where it gets no shade in summer; it is heavily mulched annually with cow-dung. The branches are pruned in spring in the same manner as Pears. There is also a plant in fruit in the Mexican-house.

CAMOENSIA MAXIMA.

The Kew plant of this African leguminous plant is again in flower, having set about a dozen heads a few weeks ago, several of which have withered, whilst the others have developed. There are six fine flowers open to-day (Christmas-Eve).

ARUNDINARIA HOOKERIANA.

Plants of the Himalayan Bamboo were sent to Kew last year by Dr. King, along with other species from the same region, and they are likely to prove suitable for the large new house. They have all grown freely and are now an attractive feature of that house, forming elegant tufts from 12 to 15 feet high. *A. Hookeriana* resembles *A. falcata* in habit and general characters. The Kew examples are 10 feet high, and consist of numerous barren leafy stems, and the newer flowering stems, which bear loosely-fascicled panicles of green flowers, with purple-brown anthers. According to Gaubie, wild specimens are 15 to 20 ft. high, and the stems are about an inch in diameter, and striped green and yellow; at Kew they are of a bluish-green colour, as also are the leaves, which are 6 inches long, and five-eighths of an inch wide. The flowering of these plants will probably terminate their lives. One sent from Kew to Glasnevin is also in flower. It would be interesting to know if the plants in India are also now in flower. The species was described by Munro in 1868 from specimens collected in Sikkim by Sir Joseph Hooker, who states that the natives make cakes and beer from the seeds. W. W.

NEW NEPENTHES HOUSE, KEW.

Our illustration (fig. 1), affords our readers a good idea of the new structure recently erected in the Royal Gardens, Kew, for housing the extensive collection of *Nepenthes*. The building is connected with the group of glass-houses usually designated the T range, and is a low, span-roofed house, with moveable upper sashes. As the *Nepenthes* are suspended from iron rods attached to the roof, bench space is not required, and consequently it is not provided. The space on each side of the path is utilised for the cultivation of plants having similar requirements to the *Nepenthes*.

THE DATE PALM IN INDIA.

IN the *Gardeners' Chronicle* of November 27, 1897, you notice the Annual Report of the Saharunpore Botanic Garden (India), and state that "Mr. Gollam does not report favourably on the Arabian Date Palm."

Having been—with the active help of the Government of India—the father of this experiment, will you allow me to say a few words on the "great misconception of the whole business" with which the reporters on the Date Palm in India deal.

Mr. Ridley, of Lucknow, writes to me the same unfavourable strain regarding the Date-trees there. They seem to have run away with the idea that the object of the introduction largely of the cultivated Date Palm into the p.ains of India was to compete with the delicious sweetmeaty Dates that find their way into the London shops, and those of other great cities, from the Persian Gulf, Tunis, and other Date-producing countries, and to supply a delightful dry fruit for the palates of the higher classes of India.

Let me say, that this was not at all the object I had in view when I suggested the experiment to the Government of India. The object was to supply a

* The first announcement of these plants in the horticultural press seems to be that of *Revue Horticole* (Paris) 67, p. 81 (Jan. 16, 1895). The first general account of the race was published in *Revue Horticole* 67, p. 516 (Nov. 16, 1895). Additional notes and a chromo-lithograph appeared in the same journal for Feb. 16, 1896.

33 MEDALS & AWARDS

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GRAPES AND STRAWBERRIES.

MR. CAMM writes:—"I have much pleasure in adding my testimony to the value of your 'LE FRUITIER.' After two years' use in the Vineries a very marked improvement is evident. I never saw finer berries, they were well coloured and in bunches of 10 to 13 lb. weight. For pot Strawberries I shall use it exclusively in the future: our Strawberries last March were the admiration of everyone who saw them."—THE GARDENS, BATTLE ABBEY, SUSSEX.

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12	Th	Jersey Gard. Meet. Moon Last Quar., 9h. 30m. aft.
13	F	Roy. Bot. Soc. (Lecture).
14	S	<i>Regation Sunday.</i>
15	M	Devon County Agri. Sh. at Newton Abbot.
16	M	York Florist's Exhibition.
17	Tu	<i>Ascension Day.</i>
18	W	Ascension Soc. (Lecture). New Moon.
19	Th	Roy. Bot. Soc. Gen. Meet. 9h. 30m. aft.
20	F	Roy. Bot. Soc. Gen. Meet. <i>Sunday after Ascension.</i>
21	S	Linnean Soc. (anniversary). Show (3 days). Bath and West and Southern Counties Soc. Exh. at Cardiff (6 days).
22	M	Roy. Hort. Soc. Temple Show (3 days). Sun rises 3h. 55m.; sets 7h. 50m.
23	Tu	Roy. Bot. Soc. (Lecture). Sun rises 3h. 55m.; sets 7h. 50m.
24	W	Roy. Hort. Soc. (Lecture). Sun rises 3h. 55m.; sets 7h. 50m.
25	Th	Roy. Bot. Soc. (Lecture). Sun rises 3h. 55m.; sets 7h. 50m.
26	F	Roy. Bot. Soc. (Lecture). Sun rises 3h. 55m.; sets 7h. 50m.
27	S	Moon First Quar., 5h. 14m. aft.
28	S	<i>White Sunday.</i>
29	M	Bank Holiday.
30	Tu	
31	Th	

13	M	Roy. Hort. Soc. Coms. Eastbourne Hort. Soc. Meet.
14	Tu	Grand Yorkshire Gala (3 days). Prince Findlay d., 1896.
15	W	Roy. Bot. Soc. (Lecture).
16	Th	<i>2nd Sunday after Trinity.</i> New Moon, 4h. 19m. morn.
17	F	Accession of Queen Victoria, 1837. Roy. Agr. Show at Birmingham (4 days).
18	S	Roy. Hort. Soc.'s Rose Sh. Sun rises 3h. 45m.; sets 5h. 15m.
19	M	Bath Rose and Begonia Show. Nat. Rose Ex. at Bath.
20	Tu	Roy. Bot. Soc. (Lecture). Windsor and Eton Rose and Hort. Show.
21	W	Roy. Hort. Soc. Coms. Roy. Hort. Soc. of Southampton Exh. (2 days).
22	Th	Croydon Horticultural and Rose Show.
23	F	Roy. Hort. Soc. Ireland, Exh. Mean temp., Chiswick, 62° 6'.
24	S	
25	M	
26	Tu	
27	W	
28	Th	
29	F	
30	S	
31	Tu	

13	W	Dunham, Northum. & Newcastle Hort. Soc. Show (Dedication from the Roy. Hort. Soc.).
14	Th	Nat. Rose Sh. at Halifax. Salicornebble & Dist. Rose Soc. Jersey Gard. Floral Fete.
15	F	St. Swithun's Day.
16	S	<i>6th Sunday after Trinity.</i> New Moon, 7h. 47m. aft.
17	M	T. H. Rabone died, 1895.
18	Tu	Sun rises 4h. 10m.; sets 5h. 2m.
19	W	Prof. Bashington died, 1895.
20	Th	Roy. Bot. Soc. Gen. Meet.
21	F	<i>7th Sunday after Trinity.</i>
22	S	Roy. Hort. Soc. Coms. Moon Last Quar., 1h. 40m. aft.
23	M	Brightstone (L. W.) Hort. Show.
24	Tu	Midland Gard. & Pic. Soc. Ex., Birmingham (probably) (2 days).
25	W	M. J. Berkeley died, 1889.
26	Th	<i>8th Sunday after Trinity.</i> Mean temp., Chiswick, 63° 2°.
27	F	
28	S	
29	M	
30	Tu	
31	W	

12	F	<i>Trinity Last Sunday after Trinity.</i> Sun rises 4h. 10m.; sets 5h. 2m.
13	S	Roy. Bot. Soc. Gen. Meet.
14	S	<i>10th Sunday after Trinity.</i> Sir Walter Scott born, 1771.
15	M	Mean Temp. Chiswick, 62° 3°.
16	Tu	Shropshire Hort. Soc. Sh. (2 days). Shank-hin (L. W.) Hort. Sh.
17	W	Roy. Jersey Hort. Soc.'s Sh. Nixon (L. W.) Hort. Show.
18	Th	Devon and Exeter Hort. Soc. Sh.
19	F	Hack Game Shooting begins.
20	S	<i>11th Sunday after Trinity.</i> Sun rises 4h. 58m.; sets 7h. 7m.
21	M	Roy. Hort. Soc. Coms.
22	Tu	Harpenden Hort. Soc. Sh. Moon First Quar., 5h. 32m. aft.
23	W	Ellenmore Flor. and Hort. Soc.'s Exh.
24	Th	Roy. Hort. Soc. Ireland Exh.
25	F	Worsley Hort. Show.
26	S	<i>12th Sunday after Trinity.</i> Nat. Chrys. Soc. Gen. Meet.
27	M	
28	Tu	
29	W	
30	Th	
31	F	

SEPTEMBER.

OCTOBER.

NOVEMBER.

DECEMBER.

1	Th	Sun rises 5h. 14m.; sets 6h. 46m.
2	F	Nat. Dublin Soc. Exh. at Crystal Palace (2 days).
3	S	L. W. Hort. Soc. Meet. Mean temp. Chiswick, 60° 6°.
4	S	<i>13th Sunday after Trinity.</i>
5	M	Roy. Hort. Soc. (Coms. Scottish Hort. Assoc. Meet. Nat. Chrys. Soc. Exh. (3 days). Dunham Floral Soc. Exh. (2 days).
6	Tu	York Florists' Exh. of Dahlias, Asters, &c. Moon Last Quar., 10h. 6m. aft.
7	W	Jersey Gardeners Meet.
8	Th	Henry Knight d. at Laeken, 1896.
9	F	
10	S	<i>14th Sunday after Trinity.</i>
11	M	Hort. Prov. and Ben. Inst. Com. Meet.
12	Tu	Eastbourne Hort. Soc. Meet.
13	W	Royal Caledonian Hort. Soc. Exh. (2 days).
14	Th	
15	F	New Moon, 0h. 10m. morn.
16	S	High Low died, 1893.
17	S	<i>15th Sunday after Trinity.</i>
18	M	Sun rises 5h. 43m.; sets 6h. 5m.
19	Tu	Royal Hort. Soc. Coms.
20	W	Sir Walter Scott died, 1832.
21	Th	
22	F	Moon First Quar., 2h. 39m. morn.
23	S	Mean temp. Chiswick, 56° 1°.
24	S	<i>16th Sunday after Trinity.</i>
25	M	Nat. Chrys. Soc. Flor. and Gen. Coms. Meet.
26	Tu	
27	W	Louis Pasteur died, 1895.
28	Th	Roy. Hort. Soc.'s Fruit Show at Crystal Palace (3 days). Michaelmas Day. Full Moon, 11h. 11m. aft.
29	F	Roy. Hort. Soc. Crystal Palace Fruit Show (3 days).
30	S	
31	Tu	

1	S	Pheasant Shooting begins. L. W. Hort. Soc. Meet.
2	S	<i>17th Sunday after Trinity.</i> Mean temp. Chiswick, 64° 9°.
3	M	
4	Tu	Scottish Hort. Assoc. Meet.
5	W	Sun rises 6h. 9m.; sets 5h. 28m.
6	Th	Ayrshire Gardeners' Ann. Meet.
7	F	Moon Last Quar., 6h. 5m. aft.
8	S	
9	S	Baron Ferl. von Mueller died, 1896.
10	M	Oxford Michaelmas Term begins.
11	Tu	Roy. Hort. Soc. Coms. Nat. Chrys. Soc. Exh. (3 days). Eastbourne Hort. Soc. Meet.
12	W	
13	Th	Jersey Gardeners' Meet.
14	F	Five Insurance expires.
15	S	New Moon, 0h. 37m. aft.
16	S	Dr. Henry Trimen d., 1896.
17	M	
18	Tu	Mean temp. Chiswick, 50°.
19	W	Night long, 13h. 34m.
20	Th	
21	F	Lincoln Fair.
22	S	Moon First Quar., 9h. 5m. morn.
23	S	<i>20th Sunday after Trinity.</i>
24	M	Nat. Chrys. Soc. Flor. and Gen. Com. Meet.
25	Tu	Roy. Hort. Soc. Coms.
26	W	
27	Th	Sun rises 6h. 47m.; sets 4h. 41m.
28	F	Horncastle Fair.
29	S	Moon Full, 0h. 18m. aft.
30	S	<i>21st Sunday after Trinity.</i>
31	M	Nat. Chrys. Soc. Flor. Com. Meet.

1	Tu	Scot. Hort. Assoc. Meet. Croydon Chrys. Sh. (2 days). Torquay Gard. Ass. Chrys. Sh. (2 days).
2	W	Isle of Thanet Chrys. Show (2 days). Kent County Chrys. Show (2 days). Wolverhampton Chrys. Soc.'s Sh. (2 days). Dorchester Chrys. Sh. (2 days). Jersey Chrys. Sh. (2 days). North Exeter Fruit and Chrys. Sh. (2 days). North Peckham Chrys. Soc. (4 days).
3	Th	North Scotland Root, Veg. and Fruit Show. Sun rises 7h. 3m.; sets 4h. 25m.
4	F	<i>22nd Sunday after Trinity.</i>
5	S	
6	M	Roy. Hort. Soc. Coms. Birmingham Chrys. Sh. (3 days). Nat. Chrys. Soc. Ex. at Annarim (3 days). Hildesheim and Dist. Chrys. Sh. (2 days). Yeovil Chrys. Show.
7	Tu	Bournemouth Chrys. Sh. (2 days). Jersey Gard. Chrys. Sh. (2 days). Roy. Hort. Soc. Ireland Chrys. Sh. (2 days). Wisbech Chrys. Sh. (2 days). Harrogate Chrys. Show (2 days). Nottingham and Notts Chrys. Soc. Sh. Leicester Chrys. Sh. (2 days).
8	W	
9	Th	<i>23rd Sunday after Trinity.</i>
10	F	Nat. Chrys. Soc. Flor. Com. Meet.
11	S	Leeds Pax. Soc. Ch. Sh. (2 days). Winchester Ch. Sh. (2 days). Folkestone Ch. Sh. (2 days). York Chrys. Sh. (3 days). Buxton Chrys. Bristol Ch. Sh. (2 days). Haul Ch. Ex. (2 days). Scot. Hort. Soc. Chrys. Sh. at Edinburgh (3 days). Norwich Chrys. Sh. (3 days). probably. Stockport Chrys. Show (2 days).
12	S	
13	M	<i>24th Sunday after Trinity.</i>
14	Tu	Nat. Chrys. Soc. Flor. Com. Meet.
15	W	Roy. Hort. Soc. Coms.
16	Th	Mean temp. Chiswick 41° 6°.
17	Th	Dundee Chrys. Soc. Exh. (three days).
18	F	
19	S	
20	S	
21	M	<i>1st Sunday in Advent.</i>
22	Tu	Nat. Chrys. Soc. General Com. Meet.
23	W	Mean temp. Chiswick 41° 6°.
24	Th	Dundee Chrys. Soc. Exh. (three days).
25	F	
26	S	
27	S	
28	M	
29	Tu	
30	W	Sun rises 7h. 45m.; sets 3h. 53m.

1	Th	Princess of Wales born, 1841.
2	F	Mean temp. Chiswick 41° 3°.
3	S	Sun rises 7h. 49m.; sets 3h. 51m. L. W. Hort. Soc. Meet.
4	S	<i>2nd Sunday in Advent.</i>
5	M	
6	Tu	Nat. Chrys. Soc. Show (3 days). Moon Last Quar., 10h. 6m. morn. Scottish Hort. Assoc. Meet.
7	W	
8	Th	Jersey Gardeners Meet.
9	F	(House shooting ends.
10	S	<i>3rd Sunday in Advent.</i>
11	S	
12	M	Roy. Hort. Soc. Coms. Eastbourne Hort. Soc. Meet. New Moon, 11h. 43m. morn.
13	Tu	
14	W	
15	Th	Sun rises 8h. 2m.; sets 3h. 49m.
16	F	Mean temp. Chiswick, 40° 1°.
17	S	
18	S	<i>4th Sunday in Advent.</i>
19	M	Nat. Chrys. Soc. (General Com. Meet. Cambridge Michaelmas Term ends.
20	Tu	Moon First Quar., 3h. 22m. morn.
21	W	St. Thomas. Shortest day. Michaelmas Law sittings end.
22	Th	
23	F	Sun rises 8h. 7m.; sets 3h. 52m.
24	S	R. Bentley, botanist, died, 1893.
25	S	<i>Christmas Day.</i>
26	M	Bank Holiday.
27	Tu	Moon Full, 11h. 39m. aft.
28	W	
29	Th	W. E. Gladstone born, 1809.
30	F	
31	S	Earl of Beaconsfield born.

3d.

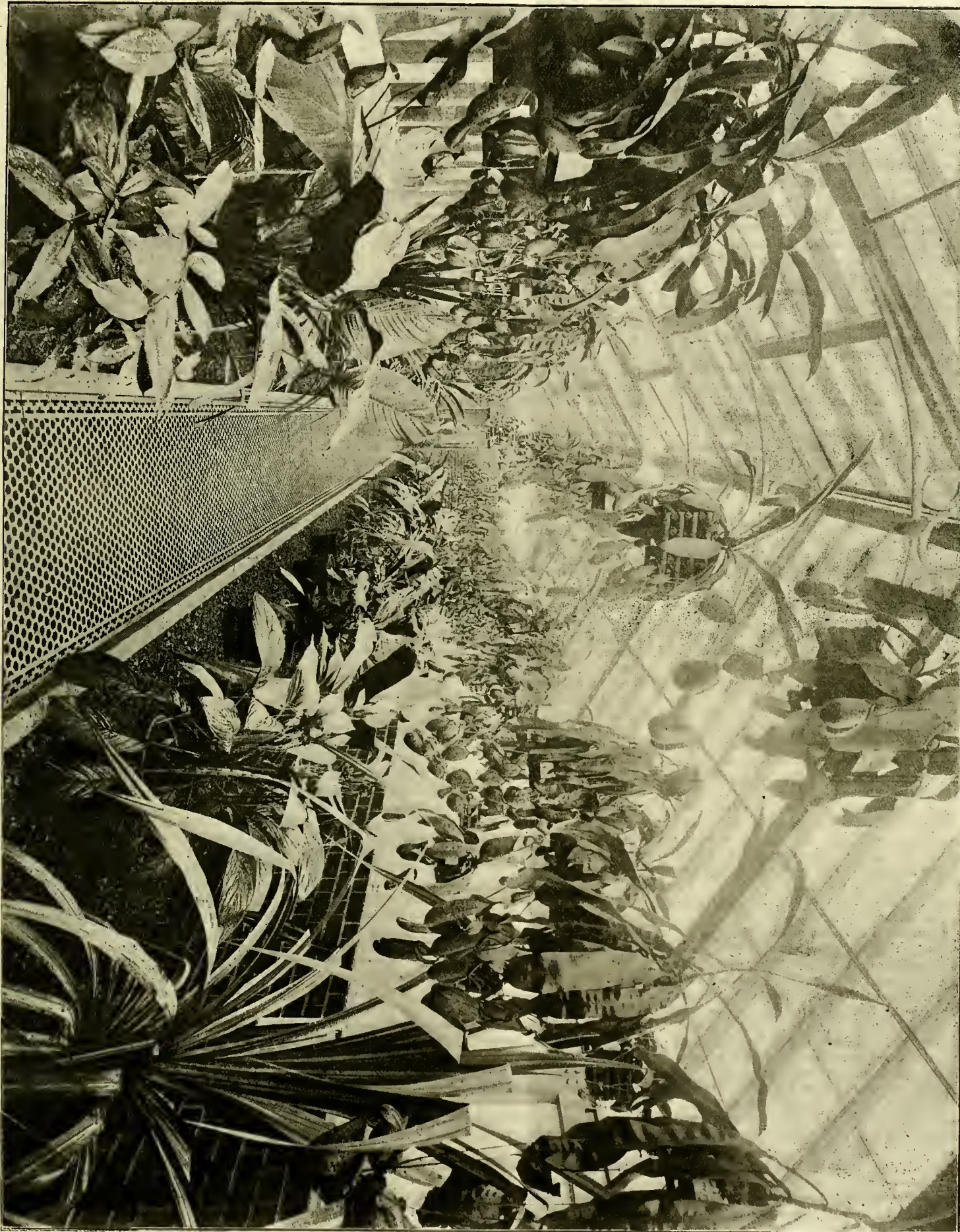
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fruit during famine times, if the Date tree were eventually largely disseminated throughout India.

I believe it impossible, excepting in Mooltan, Sindh, Rajputana, and other similar dry countries, for the Date-tree to ripen its fruit, as a sweetmeat, in the plains of India, where, during the ripening time, the rain is excessive. It rots, and there is an end of the sweetmeat!

But what of that? The Date is perfectly edible and nourishing some time before it ripens to the sweetmeaty stage. It has the crispness of an Apple, a nutty sweetness, and some astringency. This astringency is due to tannin, which, in ripening, seems to change into sugar, just as the acid of other fruits in ripening changes into sugar.

There is no fear whatever that the natives of India would not eat it in its unripe state, for I have seen the native children eat the nastiest wild fruits imaginable; and it was reported to me that the Dates of Pertabqueh (if I remember rightly) had no chance of ripening, for the children of the place ate them all up before they came to the mature stage. Moreover, there are certain kinds of Date-trees which never ripen their fruit to the sweetmeat stage. In the Persian Gulf the fruit of these is boiled, and thus the tannin is washed out of it, and afterwards it is dried in the sun. The Dates so treated are very nice, but they require good teeth to masticate them. If kept dry, they will last for a whole year or more. All those that are brought to India by Afghan merchants, under the name of *chohira*, are so treated, and I believe they are grown in some parts of Baluchistan.

In Spain the Date-tree is largely grown in the district of Elche, and this kind of Date is there pickled in vinegar.

In Mooltan, the conditions for ripening the Date are different from those of the other and more rainy parts of India. Some of the trees ripen their fruit in that district, and some do not, and the latter are fried in oil, and so keep for a long time.

I tried to ascertain the origin of the Mooltan Date plantations, but they told me that the tradition was that they grew after the invasion of Alexander the Great. The stones of the Dates that his soldiers had brought with them from the plains of Persia were scattered about, and so the Mooltan Date trees, from which the present local government derives a certain revenue, came into being!

I took infinite trouble to collect information about the Date plantations of the Persian Gulf, through the British resident there, and embodied the whole, with my own experiment, in a little book entitled, *The Future of the Date Tree in India*.

When I retired from the Indian Service, I collected information about the Egyptian Date trees through the Director of Irrigation there; and also about the Date industry of Tunis and Algeria through the British Consul-General. The latter wrote to say that he had sent Tunisian Date seeds to the Government of India, enough to plant the whole of India! I dare say most of them were wasted, or eaten by goats after germination.

I also collected information about the Date-groves of Elche, in Spain, through the Secretary of the British Embassy in Madrid, and forwarded the whole to the government of India. Not improbably, it may be snugly kept in some pigeon-hole; but of this, I know nothing. The rule is, "If you want a thing done, do it yourself;" but it is obvious that, after returning from India, I could not plant the plains of India with Date trees. It is impossible for another person to get up the same enthusiasm—the *vis a tergo* for action—as the starter of the idea. Will anyone, however, undertake to declare that if, during the recent famine, there had been a hundred million Date trees in India, they would have been of no value whatever?

The wild Date-tree grows all over India, and ripens its small fruit; and it is my firm belief that where the wild Date grows, the cultivated tree, with some attention, will also grow, but somebody must plant it, and attend to it.

There was a notion formerly that Date trees grew in deserts. Nothing of the sort occurs. In the African desert it is only in oases, where there are

openings, that the tree can grow. In the Persian Gulf it is irrigated regularly, and so it is in Egypt. But the sweetmeat stage requires a dry atmosphere. It is also a mistake to suppose that a bunch of Dates ripens all over at once, like a bunch of Grapes. The dates ripen one at a time, and are collected and spread in the sun to dry.

I took some trouble to collect some Dates of the Lucknow trees which Mr. Ridley kindly sent me, and also of the Mooltan Dates, which the Deputy Commissioner there favoured me with. I sent them all, pickled in bottles, to the Director of the Royal Gardens, Kew, to show the size of the Lucknow and Mooltan cultivated Dates. They are to be found in the small economic museum (No 2) of the Royal Gardens, Kew. *E. Bonavia, M.D.*

THE BULB GARDEN.

FREESIAS.

It is, perhaps, some twelve or fourteen years since my attention was first called to these lovely winter-blooming bulbs. Passing along Market Street, Manchester, and gazing into the well-filled shop window of Messrs. Clibran & Son, a new and beautiful cluster of flowers filled me with such curiosity and admiration, that I immediately went in and enquired of the head shopman the name, class of plant, and any hints to its culture I could procure; of course, not enquiring for any secrets, nor expecting any. *Freessias* ever after came in the list of my winter-flowering subjects; and though, perhaps, at first my success was not altogether of the best, since then I think I may say I have succeeded as well, and perhaps better, than many who have endeavoured to grow them. I should just like to bear testimony to the admirable manner in which they are grown by Mr. A. Sturt, gr. to N. Cohen, Esq., Englefield Green, and the success that has followed when he exhibited a quantity at the Royal Horticultural Society's meeting last spring. From a photograph, I should say it was a very remarkable exhibit. Among a large collection of plants recently disposed of here, I had sixty, 5-inch pots, in three different stages. The first two dozen were pushing up their spikes of bloom, and by this time I should say are a mass of flowers. I had hoped to have a nice lot for Christmas, but others have them instead. I invariably potted the first batch about the first week in August, following other batches at about three weeks or a month. Five-inch pots were used, and a dozen or fourteen bulbs placed in each. The soil, amount of croeking, &c., was just similar to that we used for Roman Hyacinths, Tulips, &c. Whilst, however, these latter were stood outside, and a good layer of sand spread over them, the *Freessias* were placed in a cold frame, carefully watered, never allowed to get dry; if sunshine was too strong, a bit of shade was placed over the pots, air being given and other attention, as though they were growing plants. In a week or two the blades of leaves soon began to appear, and, keeping them in this position, the growth became strong, sturdy, standing up like Daffodils. By the middle of October the first batch were placed in a frame where more light and air could be given. Then, by the middle of November, they were placed on a shelf in the greenhouse, four stakes being placed round them, and a string of matting keeping the whole together. In the latter stages some manure and soot-water were given about twice a week, bringing increasing colour into the leaves and vigour in the spikes.

The spikes in almost every instance produced one or two laterals, which latter usually opened their flowers a little later than these on main stem. After flowering, the pots were placed again in cold pits, a little water at first being given, but gradually withheld, so that for three months at least the bulbs were in the pots, the soil of which was quite dry. During May the pots would be shaken out, the best bulbs placed in one box, lesser ones in another. They would then be kept in the dry till about August or September, when the same or similar processes would again be carried out.

By this means I always had a good lot of fine bulbs, stout and plump, for the principal batches; whilst the very small ones would be made up in pans and boxes very thickly, to grow on and increase for another season's culture.

The ease of their culture, the attractiveness of the plants, and sweet scent of the flowers, combine to make these one of the most acceptable things in a conservatory, or for house decoration. *W. Swan, late of Bystock, Exmouth.*

INDIA.

GARDENING UNDER DIFFICULTIES.

THE wild pigs still give a great deal of trouble. It is quite astonishing how they manage to get into the gardens. They have no fear for the watchman whatever, and just simply charge them, so that they have to bolt for their lives or take refuge upon a tree, when Mr. Pig helps himself with impunity to everything good—Sugar-cane, Indian Corn, and any other palatable food in season. I am sorry to say they attacked the grafted Mangoes this year. The spreading branches of these trees bear their delicious fruit near the ground, forming an easy prey to the pigs. To prevent further destruction, I had all the branches tied up so far as I could with safety, and was able to disappoint these nightly visitors. I am glad they cannot climb trees. I am sure if they could find any means of doing so they would. The pig is considered to be a rather stupid animal, but I am not of this opinion. If they would assist in ploughing up plots that required the plough, perhaps they might be of some assistance. They do not seem to understand that their services would be required in this way; their chief amusement is rooting up the flower-beds and knocking over flower-pots. During last March a lovely plot of *Amaryllis* was simply cut down through wanton mischief, cutting the flower-stems right through the middle.

There are other visitors. Monkeys, too, are very destructive, and visit the gardens frequently. They are also dangerous, and the watchmen are afraid to interfere with the large males. Their visits are during the day, but it is not so difficult to keep them away: once perched in a large tree it is difficult to dislodge them. A huge flight of locusts visited the gardens in June, and did much damage. The top of the *Inga-duleis* arbour was completely destroyed; for the time there was not a leaf left on the whole of this lovely avenue. I was glad their stay was short; the men with noisy instruments made a great noise, which caused the dreadful and destructive insect to take wing and fly off. The flying-foxes do much damage in the fruit garden, fruits of all kinds they devour greedily. When fruit is not to be had, they eagerly devour the foliage of the *Ficus religiosa*. They are extremely fond of all the *Ficus* fruits, especially *Ficus glomerata* and *Ficus indica*; and also fond of Guavas in all stages of ripeness. There is a colony of them outside the gardens in Sabrat Bilas. Fruit-growing in this part of India is very expensive, on account of the double watches night and day. Grapes, too, suffer when just getting ripe by black and red ants. I had ashes put in line all along either side of the stems to prevent the ants running up to them. I regret to say the *Millingtonia* avenue has been destroyed by the leaves being attacked by caterpillars, which have eaten off the leaves and are now busy in weaving webs, which I had to get brushed down from the under branches. The insects seem to keep floating about in mid air, which made it almost impossible to get along this drive in the morning. I am glad to notice the insects have not all their own way, flocks of insect-devouring birds are to be seen busily engaged in devouring these insects. When the insects have been quite satisfied they curl the leaf up round them somewhat like a Tea-leaf, and thus making it difficult for the birds to detect them; and I have no doubt the insects weave these tough webs to prevent the birds attacking them. The white ants devour superfluous outer dead, cork-like, bark of this tree, which I think does the tree good by its,

removal. The ants also assist in removing the outer bark of Vines, which I think is the only assistance given by these pests in the garden. It is well known how destructive the ants are to all dead wood, such as labels, stakes, and posts of all kinds. In fact, they devour anything. Wooden garden-seats, and the roof of the potting-shed suffered badly, and the latter had to be re-roofed during the year. The ants work their way up through the masonry pillars, and devour everything on the roof with the exception of tiles. Seed-boxes cannot be left on the ground for one night without being attacked and eaten up in this way. They seem to have an instinct to find out dead wood, no matter where placed. I was astonished to find them discover and completely eat the wooden

tributed over certain parts of the host. In return for this the ants defend the plants against all sorts of enemies, rushing out of their hiding-places in an astonishing number as soon as any interference with their home makes itself noticeable. In another direction the ants contribute markedly towards the maintenance of the epiphytical species, inasmuch, the plentiful detritus carried up by them is made use of as nourishment by the host plant.

Such observations on mutualism or symbiotic appearances have shown that this kind of plant is by no means limited to groups of plants systematically closely related, but that we find them represented in various Natural Orders whose affinity is far apart from one another. This has caused not only the

illustration, is a native of Java; it is a smallish plant, perhaps never exceeding 1½ foot in height. The hypocotyl (caulicle) part of the young seedling swells up into a remarkably-sized tuber-like stem, which serves the plant in its natural state when exposed to dry and aerial atmospheric conditions, as a store of moisture; it is furnished with a considerable number of spines (modified roots), which extend along the stem up to its top. The flowers are fleshy, white, translucent, about half an inch long, and of short duration, lasting from four to six days. During this time they do not open, but keep closed till the flowers fall off the stem without being fructified, as observed on plants under cultivation.

The part inhabited by ants in this case is the fleshy, much-thickened portion, which stands originally below the cotyledons. Its curious development of the interior was formerly attributed to the action of ants, as was the production of the opening of the tuber (the passage connecting the interior with the outside). Under cultivation they have proved this not to be the case, both being developed spontaneously, wholly independently of the work and wounding of the ants.

The specimen illustrated (fig. 2) is a little over three years old, and grown from seeds, which is naturally wrapped up in a sticky integument, that enables it to adhere to any branch it may happen to fall upon, where germination soon takes place. The plant has been grown in a stove, in a very moist atmosphere, along with *Nepenthes*, in clean peat, and hung up close to the glass in a basket. The illustration will afford ample proof that those surroundings suit its requirements. *E. B. B., Berlin.* [There is a large collection of young plants at Kew, the seeds germinating with great facility; some are in the same stage of growth as represented, and others are larger. Ed.]

FLORISTS' FLOWERS.

SEASONABLE NOTES ON CHRYSANTHEMUMS.

In a cold frame out-of-doors, cuttings will strike readily and continue sturdy. If we could be certain of the absence of frost so severe as to check the growth for weeks at a time, as is sometimes the case, I should more often be inclined to strike the cuttings in cold frames. Frost, I know, does not kill the cuttings of the *Chrysanthemum*; but whilst they are frozen they are not progressing, hence the advantage of a cool house whence frost is excluded.

I prefer to insert each cutting in a 60-sized pot, for the reason that the plants are easily transferred to larger pots without any check. When half-a-dozen cuttings are placed around the side of a flower-pot, the check given by disentangling the roots when potting-off is not good for them. The compost put into the cutting-pots may consist of equal parts loam, leaf-mould, and sharp silver-sand. Make it moderately firm, sprinkle a small quantity of silver-sand on the surface, which will be carried to the base of the cuttings with the dibber used, and this aids the formation of roots. Afford the cuttings a gentle watering to settle the soil about them, and stand them aside to let the foliage get dry, but not to flag. The lights must be kept close till the roots form, with the exception that they may be taken off an hour in the morning to permit of the dissipation of excess of moisture, and in the evening the glasses should be wiped dry. If these simple rules be carried out, the loss of cuttings from damping, so often experienced at this time of the year, will be prevented. Shading will not be required, unless the glasses stand in a very sunny spot, then a newspaper thrown over the lights for an hour or two in the middle of the day will suffice. In about a month the strong-growing varieties will be rooted, and a small amount of ventilation should be admitted by tilting the lights slightly at first, increasing the quantity until they can be safely removed. If potfuls of rooted cuttings can be removed to other hand-lights, the unrooted cuttings will be the better for being kept close. The soil must be kept sufficiently moist for the support of the cuttings or plants. *E. Molyneux.*



FIG. 2.—MYRMECODIA ECHINATA: AN ANT-HARBOURING PLANT.

labels I had placed on the timber trees, notwithstanding in many instances 8 feet from the ground. I conclude by stating that the white ants are one of the most destructive garden-pests in India. *T. H. Storey, Superintendent of the Gardens of H. H. Maharana Patoh Singhji, Oodeypore.*

MYRMECOPHILOUS PLANTS.

ONLY in the latter half of this century has special attention been paid to this interesting class of plants. They exhibit in certain parts very peculiar structural developments that are specially adapted for offering shelter and a home for whole colonies of living ants; also others that afford at the same time and to a certain degree food, in the shape of sugary excretions exuding from glands or similar minute bodies dis-

structure of the host to show various differentiations, but also the morphological position of the organs inhabited. *Myrmecodia* and *Hydnophytum*, shrubby plants of the Rubiaceæ, possess the greatest number of ant-plants, the much-widened portion of the plant contains numbers of hollows, a maze of passages for the inhabiting creatures. Besides these, we meet with them in the Urticaceæ, Euphorbiaceæ, Myristicaceæ, Verbenaceæ, Leguminosæ, and in the Palmæ.

Most striking, however, are the two genera of the Rubiaceæ, with which this characteristic development is most remarkable; consequently, they have been most subjected to the study and examination regarding the peculiar habit. They are of epiphytical habit, with opposite, leathery leaves, and producing small inconspicuous flowers.

Myrmecodia echinata, Jack., the subject of our

TREES AND SHRUBS.

ERICA MEDITERRANEA HYBRIDA.

In the collection of *Ericas* at Kew, there has flowered during the last two or three winters a singularly pretty heath bearing this name, under which it is catalogued by Messrs. Smith, of Darley Dale. It bears some resemblance to *E. carnea*, and if a hybrid (as the name would suggest), that species is no doubt one of the parents. Messrs. Smith may, perhaps, know its origin. Its great charm and value consists in its coming into bloom three or four weeks before Christmas, and thus considerably in advance of *E. carnea*. It is of neat, tufted habit, at present 15 inches or so high, and crowded with erect spikes, 3 to 5 inches long, of nodding, pitcher-shaped flowers of a pale clear rose. The blossoms are very like those of *E. carnea*, but the plant is a taller, stronger grower. There is nothing out-of-doors among hardy flowering shrubs at the present time so bright and pretty as this. It remains in good condition up to February or later.

FATSIA JAPONICA.

I have never seen this shrub flower so well outside as during the past autumn. The flowers are borne on large, branching panicles, 1 to 1½ foot long, at the ends of the branches, each division of the inflorescence ending in a spherical umbel of pure milk-white flowers. Against the deep lustrous green of the large, boldly-outlined, palmate leaves, the panicles are very effective, especially when they are as large and as freely produced as those just past. In the Bamboo garden at Kew there is a group of some half-dozen plants, which, owing to their exceptionally sheltered position, and possibly also to the mildness of the last two winters, are now really handsome evergreens. It is, of course, only in such places, or in especially favoured localities, that this *Araliad* can be grown outside with any satisfaction. But where the conditions are suitable, it ought certainly to be grown, not only for the beauty of the flowers and the season at which they appear, but also because the foliage is of a type distinct from all other hardy evergreens, and essentially tropical in character. *W. J. B.*

FORCING TOMATOS.

THE latest bulletin, No. 125, from the New York State Agricultural Experiment Station, is on the subject of forcing Tomatos in the greenhouse. While the bulletin treats of special problems in training and benching, the novice in greenhouse management will find many useful hints as the various steps in growing the crop are given incidentally but in detail to discussing the problems under investigation.

The question as to how Tomatos should be trained when forced as a winter crop in the greenhouse has long been a disputed one. In order to gain some light on the question, the different methods of training Tomatos have been under investigation at the station for the past two winters. The question of checking the growth of the plants in order to produce earlier fruit was also under investigation at the same time, and was carried on in part with the same plants that were included in the training experiments.

A comparatively large number of plants were included in these experiments and the results of each season's work agree, therefore the conclusions drawn are regarded as conclusive, at least for the variety of Tomato that was used in those tests.

In the training experiments plants grown to single stem were compared with plants trained to three stems. There was but little difference in the average size of the fruits of the two lots of plants, but the results show a gain for the single-stem plants in that they give a larger yield of early ripening fruit as well as a larger total yield.

In the benching experiments, plants planted in the soil on the benches in the ordinary manner were compared with plants that were not removed from the 2-inch pots, but were plunged in the soil on the benches. It is claimed by some that by plunging

the plants in the pots, the growth is checked, and this results in earlier fruitfulness. The results show that the ordinary method of planting is equally satisfactory, except that in some cases plants that were plunged in pots and trained to single-stems gave a little larger yield than similar plants not in pots.

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Apples and Pears.—Trees which from age and other causes make weak growth or fail to bear unrepresentable fruits, and whose leaves are small and pale in colour, are the first that call for attention from the gardener. Let the soil be removed down to the feeding-roots, carefully digging it out with steel forks, without destroying or injuring the larger roots. If the surface consists of turf, this must be put on one side, to be returned when the job is finished. If the trees are not cankered, it may not be necessary to lift any of the large roots; but after the smaller roots are found, a good dressing of chemical manure, rich in potash and phosphoric acid, should be mixed with the staple, and a small portion of new loam—only a small amount of nitrogen is necessary, as this is best applied later in the season, when growth is active, and above the manure named, put a half-inch layer of charred garden-refuse, lightly pointing it in with the fork, and then follow this with a 6-inch layer of half-rotted farmyard manure, and above this return the soil that has been thrown out. The addition of these new materials will raise a mound round the stem of the tree, but as the manure decays the soil will settle down to its former level. A mulch of straw litter should be put on to keep out frost, and maintain moisture in the soil. If canker affects the trees, lifting the roots may effect some good, but the real cause of canker is now traced to a fungus which penetrates the wood through a wound in the bark, which may be got rid of by the use of the knife. Let an affected tree be gone over carefully, cutting out the cankered parts down to healthy tissue, and coating the wounds thus made with some thick paint made from clay and cow-dung, which will remain till the new bark grows and prevents the entrance of the fungus spores. All prunings should be burnt, or buried deeply. If a tree is to be lifted, the directions given above will hold good, excepting that all the roots as they are got out should be covered with damp litter till they are again laid in the earth. With full-grown pyramid or bushes which may not have been disturbed for years it is better to go only half-way round a tree one year, leaving the remaining half till the following year. When all the roots are free, make the bottom of the hole slightly convex; and if the subsoil be wet and unsuitable, put in rough stones, brickbats, &c., 6 inches deep as drainage; over these place a layer of thin turf, and then proceed to fill in, if possible, with loam that has been stacked for six months, and one-sixth part of charred refuse, as it furnishes potash and keeps the soil sweet. The roots must be replaced carefully and regularly as the work of filling-in goes on, and when the soil is returned, afford a mulch of straw-litter or half-decayed leaves, and see that the tree is secured against the wind; those that are much exposed, and have been lifted, having three guy-wires fastened to them at two-thirds of their height, and the ends fastened to stout stumps, firmly fixed in the ground at a suitable distance from the stems. To prevent these wires doing injury to the bark, place a cushion of cloth, or a bit of india-rubber hose, round the stem, making it secure in its place. After replanting, thoroughly cleanse the stems and branches from moss, doing this in mild weather. Before beginning, spread a piece of canvas under the tree to catch the scrapings, which can be removed with an old table-knife on the small branches, and a hoe on the stems and big branches. The cleaning finished, take up the canvas and burn the scrapings forthwith, thus destroying the eggs and larvae of injurious insects, as well as the moss and lichen. The stems may then be washed with a mixture of soft-soap at the rate of 6 oz. to one gallon of water, applying it warm, working it into all the crevices of the bark where American-blight harbours; and if 1 oz. of ordinary brown carbolic acid be added to the mixture, which must be kept stirred up during its use, and applied again at intervals during the summer, this will keep the American-blight in check, and the wounds made by the aphids will heal up. The

American-blight insect often hibernates at roots of the trees, just under the surface of the ground, and search should be made for it in that direction also.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Winter-flowering Begonias.—For decorative work at this time of the year, this beautiful class of fibrous-rooted *Begonias* is extremely useful, and late batches of *B. Gloire de Lorraine* will continue in flower for a length of time, being followed by *B. Gloire de Sceaux*, *B. socotrana*, and *B. manicata*. Water must be carefully afforded, in order to maintain the plants in health, and weak manure-water twice a week with beneficial effects. A medium sort of temperature, and a position where they receive all the light possible, yet slightly shading them from bright sunshine, suit them well. Plants of *B. Gloire de Lorraine* which have flowered should be cut down to afford when they break shoots, suitable for cuttings.

Sericographis Ghiesbreghtiana.—The most forward plants, being in flower, should be planted in a cooler house for a few days, in order to prepare them for employment in the house or the conservatory. They associate well with *Begonia manicata* and Palms; and they make light and elegant display for small groups and *jardinières*. The later-blooming plants, and those infested with mealy-bug, should be thoroughly cleaned, using methylated spirits of wine applied with a soft small brush, which is certain death to them.

Euphorbia pulcherrima.—Plants from which the bracts have been removed may be gradually hardened off, and then kept quite dry; but those plants which still retain their heads of bracts in good condition should be kept in a coolish house, water being sparingly afforded them, and they will then continue in good condition for some time longer. If the heads are removed after the plants have been hardened off, the former will keep fresh for a considerable length of time.

Chrysanthemums.—The cuttings inserted towards the end of the month of November and during December should be closely inspected, making good any losses. The present is a good time to put in cuttings for forming bushes, which, if left to a later period, when there is a considerable pressure of work, do not always receive the necessary attention. The soil for filling the cuttings should be of a rather light character—fresh loam with a fair amount of leaf-mould and sand answering very well. The pots used should be quite clean, otherwise in turning out the ball it is apt to stick, and this is damaging to the roots, and checks growth. For striking cuttings to form bushes, small shallow boxes answer admirably. Before putting in any cuttings, see that they are free from green-fly; dipping them in some liquid insecticide. Plug the cutting-pots in coal-ashes or cocoa-nut-fibre refuse; and, if a light or two, in a cool pit where heat can be applied when required can be utilised, so much the better, as the cuttings can then be brought close to the glass, which ensures a short sturdy growth when the cuttings commence to grow. If the striking of cuttings is carried out in tall glass-houses, boxes deep enough to allow sheets of glass being placed over the cuttings when plunged therein should be used. The shading of the cuttings must be closely attended to when the sun is bright in order to prevent flagging of the leaves. Afford the cuttings one good application of water, and dispense with fire-heat as much as possible, only making use of it to prevent the temperature falling below 45°, or to disperse excessive moisture.

Richardias.—Those plants from which the spathes have been cut should be rested for a short time in a cool green house; but those which are growing freely and showing spathes require liberal treatment. If aphids be found on the plants, fumigate or vapourise them on two successive evenings, afterwards syringing the plants thoroughly.

THE KITCHEN GARDEN.

By J. W. McHATCHE, Gardener, Strathfieldsaye, Hants.

Mushroom-house.—Let fresh beds be made up as often as may be required to maintain the supply, and keep the temperature at or below 60°, and the air moist.

Cauliflower and Lettuce plants in cold frames will need plenty of air during mild weather, to keep them sturdy.

French Beans.—Sow seed frequently, using 8-inch pots, half-filled with rich light loam, pressed mode-

rately firm, eight to ten seeds being placed in a pot, with an inch of soil lightly put above them, and place the pots in a Cucumber-house or Pine-stove. The varieties that are good forcers are Ne Plus Ultra, Syon House, and Osborne's Forcing, and bear in mind the proverb "The more hurry the less speed." Keep the temperature equable at from 60° to 70° by night, to 70° to 75° by day, or a little higher if the sun shines.

General Remarks.—If weather permits, let all spare ground be dug or trenched, and get a plot of ground in readiness for sowing early Peas and Broad Beans. The soil for these early crops should be rich but light, and well drained, so that water does not accumulate in it and rot the seeds before germination has taken place. During hard frost, prepare to go on with trenching and digging, by turning the manure-heaps and getting the decayed portion set aside for wheeling on to the vacant plots in readiness for being spread when wanted. Stable-litter and tree-leaves should be collected for the making of hot-beds for the forcing of early vegetables; and turn over, prepare, and lay up the various composts to be used in the frames. Protect Parsley by placing cold frames over it, and cover these with mats during severe frost, but affording plenty of air during mild weather. Dry fern worked between the rows is a great protection during hard frost when frames cannot be afforded. Lift, pot, or box-up roots of Mint or Tarragon, and place the same in gentle heat; also roots of Seakale, Asparagus, and Rhubarb may be lifted in mild weather and placed in a cool-house which frost cannot enter, in readiness for forcing in batches, always aiming at keeping up a constant supply of these much-prized vegetables.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorking.

General Remarks.—Although our knowledge of Orchid cultivation has made considerable progress during the past few years, there yet remains a great deal to be learned, and every grower should be on the alert to pick up useful hints that are likely to be of use in the cultivation of this interesting order of plants. I will endeavour to give such methods as I have found to be suited to their requirements under cultivation. The proper and safe road to success is by close observation. Much can be learned by visiting the collections of other persons, ascertaining, if possible, the mode of culture employed, and noting the positions occupied by the healthiest plants. The various structures in which Orchids are cultivated are the East Indian or hottest house, the intermediate and cool or the Odontoglossum-house, in which, providing the ordinary requirements of the plants are attended to, almost every Orchid from tropical countries can be grown; but where large numbers of any particular species have to be grown, it is advisable to provide a separate house for them. For instance, besides those mentioned, there are at Burford a Cattleya-house, a Mexican-house, and a Masdevallia-house. The Cattleya-house is kept at an intermediate temperature, the Mexican-house containing such plants as *Laelia anceps*, *L. albidula*, *L. autumnalis*, *L. Gouldiana*, *Odontoglossum citrosimum*, *Luisias*, *Cattleya maxima*, *Epidendrum atropurpureum*, *E. nemorale*, *Broughtonia sanguinea*, &c., is without sun-heat a trifle under the temperature of the intermediate-house; and the Masdevallia-house is a degree or two above that of the coolest division. Such a structure as the last-named is a very convenient one in which to grow *Colax jugosus*, *Maxillaria*, *Lycastes*, *Odontoglossum pulchellum*, *O. Uro-Skinneri*, *Miltonia Warszewiczii*, *Dendrobium Jamesianum*, *D. intundibulum*, *D. Wattianum*, *D. longicornu*, *D. cernuum*, *Anguloas*, *Cypripedium insigne*, *Epidendrum vitellinum*, *Pleurothallis*, *Restrepias*, *Zygopetalum maxillare*, various *Oncidiums*, &c. Where no such abundant accommodation exists, the warmer part of the cool-house, or the coolest part of the intermediate-house, should be utilised, as the case may need. The present time being about the middle of the resting and slow-growing period, which extends from November to February, the following night temperatures should, when maintained by fire-heat, range as follows:—East Indian-house, 60° to 65°; Cattleya or intermediate, 55° to 60°; Mexican, about 55°; *Odontoglossum*-house, 50°; a few degrees less is beneficial during exceptionally cold nights when the air in the houses, owing to the unusual amount of fire-heat used, is comparatively speaking dry. The day temperature should be several degrees above those indicated as maintained by fire-heat alone, but a rise of a few degrees by sun-heat is

always beneficial, and should be permitted. On cold, bright mornings the temperatures of each division should be raised by small sharp fires, so that by the time the sun makes its appearance the fires will be so low as to send forth but little heat. At such times, if the furnaces are kept full of fuel, the pipes become so hot as to cause the atmosphere to become more than ordinarily dry, and injury to the plants resulting from a continuance of this state of things would soon show itself. It is very essential that Orchid-houses should be well ventilated at the top and bottom, so that whenever the external air is calm and mild, it may be admitted, as all Orchids delight in fresh air when afforded with care.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Grape Vines.—About the New Year many gardeners commence forcing Vines, either in the first or succession vinery. The Vines for starting at this time should have been pruned and dressed, and the vinery otherwise prepared at the least six weeks previously. Examine now the soil of the border in which the Vines are growing, and if it is found to be only slightly moist, afford a good application of tepid water; and if the Vine-roots are in an outside border, place a covering of Oak-leaves, sufficient in bulk to generate a slight degree of warmth, which will keep out the frost, and maintain warmth in the soil. The temperature, when commencing to force Vines, should be about 50° at night, 55° by day with fire-heat, with a rise of 10° to 15° by sun-heat. Put on air by degrees as the temperature rises, in accordance with the amount of heat in the hot-water pipes, and the condition of the atmosphere outside. The syringing of the rods and damping of the floors and walls of the vinery may be done once if the day be damp, and on a fine day three times is not too many. Those Vines that were started in November, if conditions have been favourable, will have now started into growth; and as soon as it can be seen which shoots are showing for fruit, those not required may be removed, always bearing in mind to leave plenty of bunches for a crop, and shoots to cover the trellis without crowding them together. Before the young shoots reach the glass tie them downwards with broad strips of bast a little way at a time; the shoots on early Vines are not, however, so liable to be broken in tying them down as are those of late Vines, but still it is safer to deal tenderly with them.

Late Vines.—If the fruit is still on the Vines, it should now be removed with sufficient wood attached as will go into bottles filled with water, in which they will go into the Grape-room. Of course, a shoot should not be cut so severely as to take away the bud required to produce the bunch next season, two buds at least being left in front of that one. All the late Vines should now be pruned, cutting the laterals to the most prominent bud that is near to the rod, the length of the leading shoot being according to requirements, but 3 to 4 feet is a sufficient length to retain in one year, if there be space for so much. In the case of young Vines, if the leader be left longer, it does not always break along its entire length. By pruning early, time is given for the wounds to dry before the sap begins to rise, and bleeding is then not likely to occur. Remove as many of the long snags and spurs and all the loose bark that comes away with a rub, and afford a good washing with soft-soap and water, at the rate of 8 oz. of soap to the gallon; and dress them with a mixture of 8 oz. of soft-soap, $\frac{1}{2}$ pint of XL composition, and $\frac{1}{2}$ lb. of flowers-of-sulphur to 1 gallon of water, made of the consistency of paint with clay and a small quantity of cow-dung. This should be well worked into all crannies, and especially round the spurs, with a painter's brush. Having done this, thoroughly wash the glass and the wood-work, and whitewash the walls of the vinery, adding $\frac{1}{2}$ pint of petroleum to every 2 gallons of whitewash. The surface soil of the border should be pricked off carefully down to the roots and carried away, replacing it with eight parts good loam, lime rubbish one part, charred soil one part, with an 8-inch potful of bone-meal to each wheel-barrowful of soil. From this time until the Vines are started, the vinery should be kept cool. In frosty weather no harm will occur to the Vines if the temperature in the vinery sinks 4° to 6° below freezing-point; but at such times circulation should be slightly maintained in the heating apparatus.

The Grape-room should be dry, and provided with a small amount of hot-water piping, a ventilator being fixed at the top. There should be racks for holding the bottles at an angle of about 45°, so that the

bunches may hang clear of them, and the bottles should be almost filled with rain-water, with a little bit of charcoal in each. About 50° is a suitable temperature for this room, and it is advisable to keep a slight degree of warmth in the pipes, and to open the ventilators on every fine day, from about 9 A.M. till 4 P.M.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Changes in Flower Gardening.—That inevitable destiny of mundane things change has within the last few years greatly altered the style and aspect of the flower garden. And still there is room for further alterations and improvement. The laying out and beautifying of a flower garden does not only consist of planting masses of bedding plants grouped together in geometrical designs, but it includes, or should so do, the use of ornamental trees and evergreens and deciduous shrubs planted in a manner both as regards position and variety, that will give added charm to the whole, and being so arranged and designed that the beauty of the other portions of the garden is enhanced, and at the same time the latter blends harmoniously and gradually with the surrounding landscape. If it be the intention of the owner or his gardener to carry out the planting of trees and shrubs this year, no time should be lost in pushing on with the needful preparations, weather permitting, with expedition. In large beds and shrubberies nothing looks better, especially in the former, than standard trees of *Prunus Pissardi*, planted at intervals in number according to the size of the bed, the remaining space being filled with dwarf plants of *Acer Negundo* variegata. The effect of this style of planting on a large scale, if not overdone or to the exclusion of other shrubs, especially when the bed is on an expansive lawn, is very fine, the dark purple leaves of the *Prunus* standing out in bold relief above the green and white variegation of the *Acer*. Yellow-leaved Elder and Privet are likewise telling plants when placed in groups towards the front of a shrubbery. The former, when planted in this manner, to be pruned in the spring months, for the plant grows with great rapidity, and its foliage is of a much brighter hue if pruned than when allowed to grow at will.

Rosa rugosa.—This species, and its variety *alba*, lend themselves to this style of planting with good effect. They flower continuously throughout the summer; and in autumn the bushes are covered with the scarlet-coloured haws, while the leaves change to a beautiful golden-yellow tint. There are many other beautiful deciduous and evergreen shrubs too numerous to be mentioned here, which if planted with discretion as to selection and variety will add greatly to the charm of a garden. In planting trees and shrubs it is important to take care that the holes are of sufficient size to enable the roots to be extended to their full length before filling-in. When the planting of choice shrubs is performed, unless the land has been trenched and manured in the autumn, it is good practice to use some prepared soil of a fairly rich nature, mixing it with the staple, and covering the roots with a layer of it, at the last, 4 inches thick. American plants should be planted either in peat that has been in stack for one year, or in light fibrous loam. With these plants no stronger manure should be employed than leaf-mould, and with peat even this is not needed. When a shrub has had its roots covered partially with soil, water may be applied heavily to wash the particles of soil in among the roots; the rest of the soil being then returned to the hole and made firm. A mulch may be used over the roots, and a stake placed so as to secure the plant firmly.

The Rose Garden.—The planting of Roses should not be delayed if the weather keeps open, planting them firmly, and mulching with strawy manure. The standards should be staked forthwith, fastening the stems with loose ties, to allow of the roots sinking. Tea Roses may be covered lightly with bracken. Attend to the nailing-in of the long shoots of climbing Roses, and put the walks and grass verges in good order for the season.

General Work.—Let the fallen leaves be collected from the fronts of shrubberies, where they are likely to blow out and litter the garden. Afford the lawn and the walks a rolling as time and weather permit. Examine Dahlia tubers, removing any that are unsound; also the tubers of Begonias. Pay particular attention to the bedding *Pelargoniums*, affording them but little water, but as much air as possible in mild weather; keep the glass clean, and remove decayed leaves frequently.

APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

WEDNESDAY, JAN. 5	Japanese Lilies, Tuberoses, Continental Plants, Roses, Palm Seeds, &c., at Protheroe & Morris' Rooms. Rose and Fruit-trees, Shrubs, Border-plants, Bulbs, &c., at Stevens' Rooms.
THURSDAY, JAN. 6	Continental Plants, Dutch Bulbs, Roses, Herbaceous Plants, &c., at Protheroe & Morris' Rooms. Border-plants, at Stevens' Rooms.
FRIDAY, JAN. 7	Important Sale of <i>Odontoglossum crispum</i> and <i>Cattleya aurea</i> , by order of Mr. T. Rochford, at Protheroe and Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—36°4'.

ACTUAL TEMPERATURES:—

LONDON.—December 29 (6 P.M.): Max., 55°; Min., 46°.
PROVINCES.—December 29 (6 P.M.): Max., 54°, south-west Ireland; Min., 43°, Orkney.
Weather mild, wet, and stormy.

Retrospect: THE year is not too far advanced yet to preclude us from alluding, by way of retrospect, to its predecessor. One word, and one word only, might serve to characterise the year that has passed—"Jubilee." Our thoughts, our work, our engagements, our flower-shows, were all largely affected by this most memorable occasion. For our own parts, while providing for the present body of workers, we considered also the work of our predecessors, and the claims of the gardeners of the future, and thus it was that our columns were largely filled, even to the end, with articles relating to the progress of horticulture in the QUEEN'S reign. For statistical and historical purposes, this retrospect, ranging over almost every department of horticulture, can scarcely fail to be of use, whilst the student of evolution and progressive change will find a wealth of material placed at his disposal. Those concerned in the history and development of horticulture and of cultivated plants, would do well to preserve the two volumes containing, as we believe, a fuller and more varied retrospect than has ever before been got together.

In addition to the general articles, we published three special commemoration numbers one containing views in Buckingham Palace Gardens by the special permission of HER MAJESTY. It is thirty years since any similar views were taken, and even then they were not made public. Londoners must have been astonished at the beauty of the grounds in the rear of the palace, and in the heart of the great city with its ceaseless roar.

Our list of the trees planted by HER MAJESTY in various localities, with the dates of planting and other interesting circumstances, is we believe unique. In its construction we were assisted by Mr. MALCOLM DUNN, and other good friends.

Of exhibitions, that at Hamburg, or rather that series of exhibitions held during the year on the banks of the Elbe, takes foremost rank, and was, all things considered, the finest and most representative exhibition ever held.

Our own exhibitions are constantly increasing in number, particularly those devoted to the Chrysanthemum. The great shows at the Temple and at the Crystal Palace, held under the auspices of the Royal Horticultural Society, were admirable.

Among the meetings we must not fail to allude to the very agreeable gathering of all the committees at Chiswick. This meeting was so much appreciated that we hope it may be at least of annual recurrence. The progress and development of Chiswick are matters of the

very foremost importance to the Society and to horticulture generally.

The Society has also attempted, and successfully attempted, a very delicate and difficult task in the conferment of Medals of Honour by the express consent of HER MAJESTY, on sixty recipients. The matter is too recent to need further reference now, but as the weeks pass we have increasing evidence that the allotment of the Victoria Medals of Honour gives general if not universal satisfaction.

Manchester, Shrewsbury, Edinburgh, Belfast have all been in the front rank, and York would have been so also, save for the disastrous cyclone which ruined its prospects, and entailed a loss to the Society of £500.

The crops were fairly good, except in the case of fruit, Apples and Plums being especially deficient.

Horticultural literature has been enriched by some remarkable books, such as the Duke of BEDFORD'S *History of a Great Agricultural Estate*, and the first annual report of his Grace's fruit farm, near Woburn. The completion of the *Flora of British India* has been recently alluded to, as well as the very welcome re-appearance of the *Flora Capensis*, and of the *Flora of Tropical Africa*. All these will be of great value to horticulturists. Dr. LOWE'S book on the *Yew Trees of Britain* is one that will not lose its interest as time goes on. The *Life of Babington* is of interest as a record of many things relating to British botany and botanical affairs generally. Prof. GOFF has published an excellent little elementary treatise on *Vegetable Physiology*, as applied to gardening; and the reference to book notices in our indexes show that much has been done in the domain of literature.

Had we to speak of pure botany only, we should allude to the remarkable discovery by two Japanese botanists of spermatozoids in the pollen-cells of Ginkgo and Cycas as the most epoch-making botanical discovery for many years. The bridge between the Ferns and the Conifers and Cycads, formerly separated by a great gap, is thus established. At present, it has no bearing on practical horticulture, but we never can tell how soon, or to what extent the discoveries of science may be pressed into the service of practical work.

The old notion of the integrity of each plant-cell—an article of faith successive generations believed in—has been upset by the discoveries of Mr. W. GARDINER at Cambridge. The continuity of protoplasm—that is, the passage of minute threads of protoplasm from cell to cell—was discovered a few years since, but it has received additional confirmation this year. The result is, we must look on the plant as a connected whole, and not as a series of detached fragments, with little or no direct intercommunication. This view of plant-life, it is evident, has a very important bearing on practical horticulture.

The death-roll is heavy, and our losses severe. We have lost ROBERT HOGG, TREVOR CLARKE, and JAMES BATEMAN, a trio never to be replaced. In addition, we may mention the names of ALFRED SUTTON, one of the founders of the house of SUTTON; Mr. CHARLES SHARPE of Sleaford, who did so much to secure the passing of the Seed Adulteration Bill; BAILLIE of Chester, JAMES WEBBER of Covent Garden, HEAD of the Crystal Palace, OWEN of Maidenhead, COCKER of Aberdeen; STILES, the sympathetic and power-yielding Acting-Editor of *Garden and Forest*; LODMANN,

the young enthusiast, from whom so much might have been expected; POCHIN, of rosarian fame; PEAU, and PARISH, the well-known Orchid collectors; and many others whom we need not name, but who will be held in pleasant reverent memory for many a year to come. Perhaps in this connection we may mention the death of the Duchess of TECK as of one who took great interest in flowers and in the work of the horticulturist. Her genial presence at our shows will be much missed.

The gardening charities have been fairly well supported during the year, and the gardening community ought to feel under great obligations to the committees and others who work so disinterestedly on their behalf. The best way of showing such obligations is to send cheques to the secretaries, and so do something to alter that distressing statement annually made, that the number of worthy and approved candidates is always in excess of the number that can be elected. The beginning of the year is a time to frame good resolutions, and, better still, to put them into practice. We append the address of the Secretary of the Gardeners' Royal Benevolent Institution—G. J. INGRAM, Esq., 50, Parliament Street; and A. F. BARRON, Esq., Chiswick, the Secretary of the Royal Gardeners' Orphan Fund—the latter, it will be remembered, founded in the first Jubilee Year, and growing favourably in the last celebration.

LÆLIO - CATTLEYA × DIGBYANO - TRIANÆI (CATTLEYA TRIANÆI ♀, LÆLIA DIGBYANA ♂).

Our illustration (p. 9) represents the beautiful Lælio-Cattleya × Digbyano-Trianæi, which the raisers, Messrs. JAS. VEITCH & SONS, of Chelsea, exhibited at the Royal Horticultural Society on April 13, 1897, when it received a First-class Certificate. It is one of the finest novelties of the past year, and it passed into the collection of Sir FREDERICK WIGAN, Clare Lawn, East Sheen, Richmond (gr., Mr. W. H. Young). Its beautiful flowers are white, tinted with various shades of bright rose-colour, and like its handsome ally, L.-C. × Digbyano-Mossie, it is very fragrant. While we are strongly of opinion that the pedigree should be recorded in all these cases, we do not think it should form part of the name, a short arbitrary designation being far more convenient.

THE ROYAL SOCIETY.—In the current number of the "Proceedings of the Royal Society" is contained a paper by Dr. BROWN. The experiments were undertaken for the purpose of determining whether any change whatever goes on under ordinary conditions in resting seeds. There were three cases to consider: respiratory changes, intra-molecular respiration, and changes not attended with the evolution of gas. With reference to the first, it had been shown long ago that no gas was given off when the seed was kept for a year *in vacuo*. Their vitality was retained also when the seeds were kept for nine months in the vapour of ether and in hydrogen. The existence of intra-molecular respiration was disproved by keeping the seeds for several months in Geissler-tubes, the absence of nitrogen and carbon dioxide being shown by the spectra. To attack the third question the authors had subjected the seeds to extreme low temperatures, with the idea that if any activity existed in the seed its vitality under these conditions would be destroyed. About eight or ten species, taken from five or six families, had been treated. After being kept for 110 consecutive hours at a temperature of about -190°, the seeds were carefully thawed and set to germinate by the side of untouched seeds of the same samples for comparison. In all cases the frozen seeds grew as well as the others. Similar results were obtained by M. C. DE CANDOLLE.

ROYAL GARDENERS' ORPHAN FUND.—A meeting of the Executive Committee was held at the Horticultural Club on the 22nd ult., Mr. WILLIAM MARSHALL in the chair, when the following special

donations were announced :—Altrincham Gardeners' Mutual Improvement Society, proceeds of concert, £18 5s.; Rugby Chrysanthemum Society, per Mr. W. Bryant, £7; Mr. C. Ross, the Gardens, Welford Park, Newbury, £6 11s.; Mr. J. H. Vallance, Bristol Chrysanthemum Show, £5 5s.; Penshurst Gardeners' Association, £3 5s.; Mr. H. Herbst, Stanmore, Rich-

7s. 6d.; Mr. J. Lyne, Chislehurst, 7s.; Mr. F. Dodds, Herringswell, Mildenhall, box, 9s.; Ware and District Gardeners' Society, 6s.; Young Men at Gordon Castle, Fochabers, per Mr. C. Webster, 5s.; Mr. A. H. Palmer, Tiverton, 5s. The Secretary announced that the sum of £423 7s. 4d. had been received as the amount of the J. W. Thompson bequest. Appli-

reported, in reference to the defective lighting at the November Show at the Royal Aquarium, that it was caused by a derangement of the lighting apparatus, and that the directors had done their best to supply the failure on the part of the contractor. That as the repairs necessary before the western gallery could be lighted by electricity would occupy



FIG. 3.—HYBRID CATTLEYA = C. TRIANELI AND C. DIGBYANA. (SEE P. 8.)

mond, box, £3 1s.; Chislehurst Gardeners' Mutual Improvement Society, per Mr. H. Yoell, £2 17s. 9d.; Tonbridge Gardeners' Association, per Mr. G. Feunell, £2 10s.; Mr. J. Miles, Dudley Villas, Southampton, £2 3s. 6d.; Mrs. M. Buller, per Mr. G. Bolas, Wirksworth, £2; Mr. J. Rellend, Newton Abbot, box, 10s.; Mr. T. Wilkins, Inwood Gardens, Henstridge, 10s.; Mr. G. Mason, Rosebank, Malvern,

cations were received in the interest of eighteen children candidates for election on the Fund at the annual general meeting on February 18 next.

NATIONAL CHRYSANTHEMUM SOCIETY.—A meeting of the general committee took place at Anderton's Hotel, Fleet Street, on Monday, the 20th ult., Mr. T. W. SANDERS presiding. The secretary

some days, the directors had added new and powerful carbon burners, and the light at the December show had been greatly improved in consequence. It was agreed that two of the dates published as meetings of the Floral Committee in 1898, viz., November 28 and December 12, should be withdrawn from the list. The Secretary brought up the report of the Schedule Revision Sub-committee, in which

it was proposed to create a new class at the November Show—for twelve vases of specimen Japanese Chrysanthemums distinct, five blooms of each, £50 at least to be given in prizes. It was reported that the president, Sir EDWIN SAUNDERS, had offered to give as the 1st prize the sum of £15. The secretary also reported that in commemoration of the fact of the National Chrysanthemum Society having held their exhibitions at the Royal Aquarium for the space of twenty-one years, the directors had voted the sum of £30 as special prizes in the class for twenty-four Japanese, £25 of that sum being divided into money prizes; the Gold Medal of the society, suitably engraved, being added as an additional 1st prize. Special prizes from Mr. H. DEVERILL, Banbury; Mr. R. SYDENHAM, Tenby St., Birmingham; from Mr. W. J. GODFREY, Exmouth; and Mr. J. T. SIMPSON, were accepted; also the schedule of prizes for September, somewhat modified in regard to the Chrysanthemum classes, for October somewhat extended, and for November with added money. Eighteen members were elected, including four fellows; and the Dundee Chrysanthemum Society was admitted to affiliation.

DONATIONS TO GARDENING CHARITIES.—The result of two concerts held in Altrincham on Wednesday and Thursday, 1st and 2nd ult., under the auspices of the Altrincham Gardeners' Improvement Society, showed a balance in hand of £39 5s., which sum has been divided between the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund.

NATIONAL DAHLIA SOCIETY.—The following is a revised selected list of Cactus varieties of the Dahlia for the year 1898:—

Alfred Vasey	Juarezii
Annie Jones	Keyne's White
Annie Turner	Lady Penzance
Arachne	Mary Hillier
Beatrice	Mary Service
Bertha Mawley	Matchless
Britannia	May Pictor
Capstan	Miss A. Nightingale
Chas. Woodbridge	Mrs. A. Beck
Cinderella	Mrs. A. Peart
Countess of Gosford	Mrs. Barnes
Cycle	Mrs. Gordon Sloane
Daffodil	Mrs. H. Cannell
Delicata	Mrs. John Goddard
Earl of Pembroke	Mrs. Leopold Seymour
G. J. Deal	Mrs. Montefiore
Fantasy	Mrs. Wilson Noble
Fusilier	Night
Gloriosa	Regulus
Harmony	Robert Cannell
Harry Stradwick	Starfish
Iona	Tillie
Island Queen	Violet Morgan
J. E. Frewer	

WINDMILLS.—Mr. THOMAS CHRISTY kindly draws our attention to the manifold uses to which the principles of the windmill can be put. An illustrated sheet circulated by the Aermotor Company, Chicago, contains figures of forty-eight adaptations of the machinery as exemplified in deep well-pumps, pumps for delivering water in large or small quantities from rivers and lakes for household and manufacturing purposes. Machinery is likewise shown attached to aermotors for turning a feed-cutter, grinding corn, turning grind-stones, and various kinds of farm work. In this country the use of wind-motors seems to be mostly confined to milling purposes, and for little else; still, in a windy country, no cheaper driving method can be found than the air in motion.

"AQUATIC AND BOG PLANTS" (*Die Sumpf & Wasserpflanzen, ihre Beschreibung, Kultur und Verwendung*: VON WILH. MÖNKEMEYER; Verlag VON GUSTAV SCHMIDT, Berlin, S.W.).—In addition to the *American Water Garden*, a publication has appeared in the German language, written by Mr. MÖNKEMEYER, the well-known curator of the Leipzig Botanic Garden, who has not only proved himself to be a successful gardener, but also a botanist of ability. The above-named work, treating of a subject the literature of which is scanty, and only to be found dispersed through various journals, supplies a long-felt want for amateurs in this branch of gardening. Of late years, especially, considerable attention has been paid to the cultivation of this interesting class of plants, so that the work now issued will be very

welcome. It comprises 190 pages, with 126 illustrations, drawn for the most part by the writer himself, which greatly add to the value of the book. Not fewer than 74 Natural Orders of flowering plants are found to possess representatives amongst water and bog plants; in fact, the compiler appears to have overlooked few that might be used for decorating natural waters and their margins, as well as those aquatic plants which will readily thrive in a living-room. Study and observation during many years have enabled him to bring together much material worthy of consideration. The book can be recommended to all who take pleasure in growing aquatic plants, and who are able to read German. It is very clearly written.

SOME ITEMS CONCERNING 1898.—As much information respecting horticultural meetings and exhibitions for the year just horn as could be obtained before going to press will be found in the Almanack which is presented as a Supplement to our present issue. Most of the important events have been thus announced, it being customary in the case of influential societies to compile their programmes and schedules as early as possible. We give below a few particulars in addition to what are given in the almanac that may be interesting:—

THE MARKET GARDENERS', NURSERYMEN, AND FARMERS' ASSOCIATION, 32, King Street, Covent Garden, will hold their annual general meeting at a date to be fixed in July, and the executive will meet upon the first Tuesday following the quarter-days. As there have been frequent enquiries for the address of this Society, our readers will please note the above.

THE FARNINGHAM ROSE SOCIETY (writes Mr. Edmonds, the Hon. Secretary) will hold its annual exhibition upon the last Wednesday in June, or the first in July.

Mr. E. A. Newman, secretary to the **EASTBOURNE HORTICULTURAL SOCIETY**, states that meetings will be held on the second Tuesday in each month in the Natural History Society's Rooms, Lismore Road, at 8 P.M. There will be a competition among the members at each meeting. The date of the annual Chrysanthemum show has not been fixed.

THE ROYAL SCOTTISH ARBORICULTURAL SOCIETY will hold its annual meeting on January 26. A general meeting and annual excursion will take place at the end of July or beginning of August. The council will meet once in two months.

THE NATIONAL PINK SOCIETY (Midland section) and the **WORKSOP ROSE AND HORTICULTURAL SOCIETY** are in abeyance.

The annual show of the **SOUTH SHIELDS AND NORTHERN COUNTIES CHRYSANTHEMUM SOCIETY** will be held (writes Mr. Bernard Cowan) in the middle of November.

The annual meeting of the **NATIONAL CARNATION AND PIOTEE SOCIETY** (Northern section) will be held on January 29, when the date of the forthcoming exhibition will be probably fixed for the second Saturday in August. The secretary is Mr. T. Lord, Hole Bottom, Todmorden.

The exact date of the Annual Exhibition of the **ROYAL HORTICULTURAL SOCIETY OF ABERDEEN** has not been fixed, but it will probably take place on August 18, 19, and 20.

THE SCOTTISH HORTICULTURAL ASSOCIATION will hold meetings on the first Tuesday in each month, when papers will be read and exhibits made of new or rare plants, fruits, flowers, &c. Mr. R. Laird, the secretary, also informs us that this society will hold its great Chrysanthemum show on November 17, 18, and 19.

Mr. E. J. Ashelford, secretary of the **SOCIETY OF JERSEY GARDENERS** writes, that his Society will hold monthly meetings on the second Thursday in the month, and the Council will meet on the fourth Thursday. The Floral Fête has been fixed for July 14, and the Chrysanthemum Show for November 9 and 10.

THE ROYAL NATIONAL TULIP SOCIETY will hold an exhibition in or near Manchester, and another one in London, but the dates have not yet been fixed (Secretary, Mr. Jas. W. Bentley).

THE NATIONAL AUBICULA SOCIETY (Northern Section) will meet at the Old Bull's Head, Market Place, Manchester, on Wednesday next, when the place and date for the annual exhibition will be decided.

THE GERMAN ROSE SOCIETY'S Annual Exhibition will be held at Cologne at the end of June. Novelties of German and foreign origin are solicited by the secretary, P. Lambert Frier.

THE RENFREWSHIRE GARDENER'S MUTUAL IMPROVEMENT SOCIETY will hold meetings on Jan. 12, 26, Feb. 9, 23, and March 9.

THE WAKEFIELD PAXTON SOCIETY will hold weekly meetings at the Paxton Room, Woolpack Hotel, on Saturdays at 8 P.M. until March 5, when the annual general meeting will take place.

THE MANCHESTER HORTICULTURAL IMPROVEMENT SOCIETY will meet in the Memorial Hall, Albert Square, Manchester, at 7 P.M. on Jan. 13, 27, and Feb. 10, 24.

THE AYRSHIRE GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION will hold fortnightly meetings until May 5 in the Garrick Street Hall, Ayr, at 7.30 P.M. on alternate Thursdays.

A DIAMOND JUBILEE OAK.—Princess CHRISTIAN has planted in Windsor Park a tree to be known as the "QUEEN'S Diamond Jubilee Oak," the offspring of the QUEEN'S Jubilee Oak, planted in 1887. A tablet will bear the inscription, "This tree, raised from an acorn of the QUEEN'S Jubilee Oak, 1887, was planted, 1897, by H.R.H. Princess CHRISTIAN (Princess HELENA of Great Britain and Ireland) in commemoration of the sixtieth year of the reign of her Majesty Queen VICTORIA."

FLORA OF TROPICAL AFRICA.—It was only in our last number that we adverted to the publication of a part of the *Flora Capensis*, and in this week's number, the first of the year, it falls to our lot to have to mention the rejuvenescence of the *Flora of Tropical Africa*. Three volumes were issued up to 1877, and then the work came to an abrupt stop. How much the area and the material have increased since then it needs no research to discover. This is one of the reasons why the resumption of the work begins with vol. 7, in which the Orchids and the grasses, with other orders specially interesting to practical men will be comprised. The present part will be specially interesting to Orchid growers, in that it contains a large instalment of the Orchids from the pen of Mr. ROLFE. The publication of the Indian Orchids by Sir J. D. HOOKER, of those of S. Africa by Mr. BOLUS, and of Tropical Africa by Mr. ROLFE, will afford us a most valuable addition to Orchid lore, and do much to remove the perplexity and uncertainty in which we have been plunged.

THE WORCESTER BRANCH of the Gardeners Royal Benevolent Institution recently held its annual general meeting at the Guildhall, Worcester. The report of the committee was adopted as very satisfactory, new officers were elected, and thanks accorded to Earl BEAUCHAMP and others who have materially assisted the Fund during the past year. During the past two years of the existence of the Worcester Auxiliary it has been able to provide the parent society with the considerable sum of £227 15s. The auxiliary nominated one candidate at the last election of pensioners, and the committee was pleased to announce that this gentleman was elected. Mr. J. HILL WHITE was re-elected Hon. Sec. and Treasurer.

RASPBERRIES ON CHRISTMAS DAY.—A correspondent in co. Meath informs us that he not only gathered Roses, Violets, and Primroses in his garden on Christmas Day, but a small dish of Raspberries.

PUBLICATIONS RECEIVED.—The *Weekly Budget* and the *Weekly Budget Supplement* for December 25, containing a store of seasonable literature for home or foreign readers.—*English Illustrated Magazine*, January, 1898.—*Annual Report of the Smithsonian Institution* (1), to June, 1897; (2), to June, 1894.—Two bulky volumes, full, as usual, of interesting information on scientific and general subjects; ethnological papers have a prominent place.

APPLE ROYAL SNOW.

DURING a visit to the Smithfield Cattle Show, held recently, we remarked the above Apple upon a stand belonging to Mr. W. Horne, Perry Hill, Cliffe, Rochester; and subsequently Mr. Horne has obliged us by placing specimens at our service for illustration (fig. 4). Royal Snow is a Canadian Apple, and we are informed that one of Her Majesty's Jubilee Commemorative gifts was a number of the fruits, sent by some Canadian fruit growers, who regard the variety with the highest favour. The fruit is above medium-size, being about 3 inches high, and nearly as wide, the halves unequal; colour intense but bright red, except on the shaded side, where the red streaks over a pale yellow ground are abundant. The whole of the exterior of the fruit is marked with small whitish spots. Eye closed, and set in a moderately deep and wide cavity; stalk slender, quite an inch long, and set in a deep funnel-shaped cavity, which, together with the base of the fruit, is covered with russet.

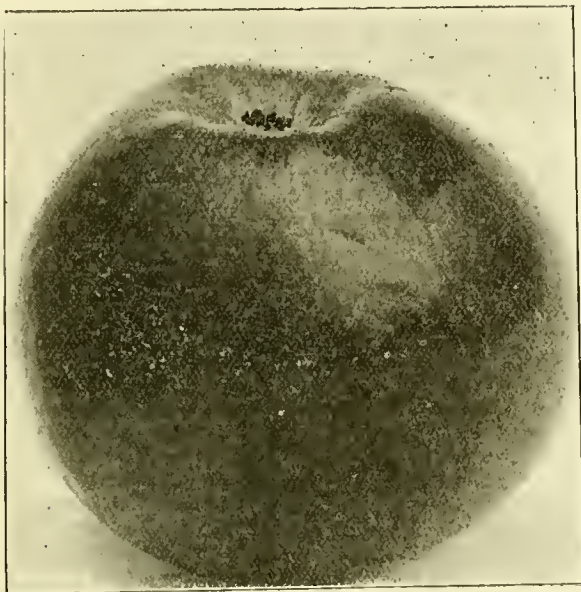


FIG. 4.—ROYAL SNOW APPLE.

The flesh is normally firm, juicy, crisp, of a peculiarly sweet, vinous flavour, and the fruit may be termed a first class dessert Apple for Christmas and the New Year. It is Mr. Horne's intention to introduce the variety into this country, and we shall be interested to see how far it may prove adapted to our climate and methods of culture. The specimens we have seen, however were grown in Canada, and the appearance and quality of the fruits must therefore not be taken to represent what fruits grown in this country may be expected to be like at this late season of the year, though this may possibly prove to be the case.

BOOK NOTICE.

FLORA PYRENÆA PER ORDINES NATURALES GRADATIM DIGESTA.—Opus posthumum editum, curante O. Penzig. Vol. i. MDCCCIII. Mediolani (Milan), Ulric Hoepli.

THIS is a book that will appeal to many interests. An authentic and carefully compiled list of the plants constituting the Pyrenean Flora is a boon that botanists and gardeners will cordially welcome.

Scholars, antiquarians, nomenclaturists (pardon the word) will all find interest, information, and some amount of amusement in these pages. Bubani was born in 1806, studied at the University of Bologna, managed to get involved in political disturbances, and in consequence was compelled to migrate from place to place, ultimately settling in Montpellier, where he enjoyed the friendship of Dunal, and first became imbued with his love for the Pyrenees and their flora. After a time he went back to Italy, but his native country proved no home for him, and he returned to the Pyrenees, and completed his flora, revising it from time to time.

Death overtook him in 1888, before he had the satisfaction of seeing his work in type. Now, owing to the pious care of Professor Penzig, the first volume sees the light. It is elaborated with painfully minute detail, and is preceded by a long Latin preface. In it the Pyrenees are divided into three botanical regions—the Atlantic, the Mediterranean, and the alpine region, the slopes of which face in the

montana. Most botanists would be more modest—they would say they did not know precisely what the authors in question meant. Their descriptions are not adequate, and they have left no plates, still less any authentic specimens, so that verification of references is impossible. A botanist like Dr. Bubani, who attributes any particular plant to them, must, it would seem, break that essential rule of nomenclature which forbids us from attributing to anyone that which he has not said.

But Bubani is not content with the Banihins and Gesners of the renaissance, nor with the classical writers of Greece or Rome; he goes back to Holy Writ itself, and gives as the botanical authority for *Juniperus oxycedrus*, "Bibl. Sacr." We are not conversant with Hebrew, but we are quite certain that "*Juniperus oxycedrus*" is not mentioned in Holy Writ. Bubani, however, here, as always, scrupulously careful in his references, cites chapter and verse as follows—"Job, c. 30, v. 4." We turn to the authorised version, and we find, *i.e.*, "Who cut up Mallows by the bushes, and Juniper roots for their meat." A diet of Juniper roots does not sound appetising. We consult the revised version, and there we find the passage rendered:—"They pluck Saltwort by the bushes, and the roots of the Broom are their meat," the marginal rendering being, "to warm them," which seems much more likely. Bubani, in all probability, did not consult either of these versions of the Bible, but whatever version he consulted, it is at any rate clear that it is not judicious to wrest biblical names from their context, and apply them as they were never intended to be used. We do understand *Juniperus oxycedrus*, L. Sp., and we have the means of verifying the reference, but we can have no certainty as to the exact identity of the plant mentioned without any description, or figure, or specimen, by Job. Nevertheless, it is so convenient for the student to have these references ready to hand that it would ill become the critic to grumble because they are put out of their proper order.

No descriptions of species are given, but a full synonymy is supplied, together with details concerning the time of flowering, the nature of the soil upon which the plant grows, the localities where it has been found, and even the dates when particular specimens were collected. Notes and comments on the structure and affinities of the species are added, which reveal the accurate observation of the botanist. The student will be startled at the new names applied to old genera, or at the revivification of old names; for instance, on the authority of Pliny, *Viscum album* becomes *Stelin album*. As a full synonymy is given, and it is to be hoped a full index will also be forthcoming, these eccentricities may be pardoned, the more fully, as we are informed that the book was finished on December 15, 1873, about 2 o'clock in the afternoon, and therefore before the appearance of De Candolle's "*Lois*," or the publication of the *New Index*. Moreover, no one need follow Dr. Bubani's example.

One entry in the preface we cannot forbear quoting in the original. It tells how, on the afternoon in question, having finished his manuscript, he, with a full heart repeatedly embraced his daughter, that daughter who bore the name Felicia in commemoration of the friendship that existed between the author and Felix Dunal:—"Illico eo peracto gloriosus ad dilectissimam filiam Feliciam accessi (cui magistri et amici mei Dunal nomen imposui), eamque quam suavissime, jucundo corde iterum ac tertio osculatus sum." This was in 1873. In 1875, and in 1880 (July 25) the revision of the whole was repeated, and probably the osculation. Till the day of his death, in 1888, this process of revision and addition was carried on. It has fallen to Professor Penzig's lot to see the completed volumes through the press; he was precluded from making any change in the text, but the mere mechanical labour of supervising the impression of such a volume must have been exceptionally great. A volume of such learning and erudition, and one so accurately compiled, must, in spite of its eccentricities, have a warm welcome in the botanist's library.

direction of both oceans. Other sub-divisions are founded on the character of the soil—calcareous, saline, or otherwise.

Long disquisitions on nomenclature and synonymy follow, which are very interesting to the professed botanist, but not so much so to the amateur or to him who wants to know something about the plants themselves rather than the opinions of this or the other botanist on technical details of nomenclature. That system which enables the student to find what he wants with the greatest facility is the most generally useful. The name found, the student can arrange his details according to whatever system he prefers; and whilst anxious, as all should be, to avail themselves of the newest and best results of science, they need not waste their time on wrangles as to priority and bibliography—unless, indeed, their studies and predilections lead them to indulge in these researches. To mix up history with nomenclature more than is absolutely necessary is to confound two different things.

Bubani goes back to the classics, in the case of *Ulmus*, for instance, he quotes Homer, or, rather, *Ulmus vulgaris* is attributed to Homer as the authority, and Theophrastus is made responsible for *Ulmus*

A FRENCH GARDEN IN 1545.

(Continued from vol. xxii, p. 425.)

AREA OLITORIA.—This contains two beds, the "Salad" and the "Cendiment ;" first, the Salad-bed, Pulvinus acetarius: Lactuca, Lettuce; of this, some are sessile, some crisp, and others headed, called "Apple-Lettuce." The wild Lettuce some take to be the Eudive, though "the Lettuce has the leaf of Chicory, yet it is broader, whiter, and less incised." Seris (in Ork.), Intybum (in Lat.), Scariola of the Italians, has two cultivated kinds, viz., the broad-leaved, Cichorion domesticum, and the narrow-leaved, or "Endive." The wild is called Cichorion, i.e., "Chicory;" the Pieris of the Greeks because of its bitterness.

Hieracia major, called "yellow Chicory." As the author describes this as having a rough stem bristling with little spines, it would seem to be a Sow-Thistle, perhaps *Sonchus asper*; but he describes the garden Sow-Thistle under the name of *Cicerbita* (Lat.), which he says is commonly called "Du laceron," *Hieracia minor*, the author observes, the common people call Chicory, or Wild Endive; for it has leaves divided at intervals, tender little stems, green, on which yellow flowers are borne. It is not clear what this really is.

Malva, Mallows.—These were grown more for medicinal uses, on account of their emollient properties. He also describes the Tree-mallow "Rose d'Oultre Mer," i.e., the Hollyhock. *Bismalva*, "Des Guimaupes," i.e., *Althæa officinalis*, or Marsh-mallow. He says of this, that it grows as high as the tops of the houses in Germany, and shepherds use its pliable stems as whips for the sheep! *Acanthus*, called mollis, because of the emollient nature of the root; and, though not a true "Acetarian," or Salad-plant, he associates it with the Mallows.

Oralis, Wood-sorrel; *Portulaca* "Purpier," *Bipinnella*, "De la Pimprenelle," *Poterium Sanguisorba*, or Salad Burnet; *Cithmum maritimum*, Samphire; *Olus cordum*, or cultivated Samphire, batis of Columella; it was called *Empetrum*, and the common people corrupted this name to "Sanpetram;" thence it came to be called St. Peter's Herb.

Asparagus.—There are two kinds, one the "fat" (altis), or the garden sort. "It is very quickly cooked, then steeped in vinegar and oil; hence arose the proverb of anything which can be done very quickly, one says—'More quickly than Asparagus can be cooked.' The other kind is the wild, woody, and spiny species;" perhaps, *A. horridus* of the European rocky ground.

Cardamum (Grk.), *Nasturtium* (Lat.), "Du Cresson alenois," i.e., éloigné, Garden Cress; *N. aquaticum*, or *cardamina*, because the taste resembles that of Cardamoms, called by Latins, laver, or Sion; in French, "berle," by a transposition of the letters, thus—*Laver* becomes *verla*, then *verula*, hence Fr. "berle." Modern dictionaries render this "the Celery." (This reminds one of the word *Revalenta*, i.e., *Erythraea*, framed from *Erythra* Lens, the Lentil). *Sisymbrium*, also called *Cardamina*, is another water-plant, which the author calls "Du cresson," but says there has been a great contention over it. It appears to be Water-cress; *Eruca*, "De la Roquette," *E. sativa*, *L.*

Senecio, "Du Senecon," Groundsell, "is most pleasant in salads." The flower, he says, vanishes into a pappos, which the people call "barbe dieu." It may be noticed that Ion Gardener also includes the Groundsel as a garden plant (*A Fifteenth Century Treatise on Gardening*, by Hon. A. Amherst).

Lapathum, "Parella," or "De la Parelle, or Patience," *Rumex Patientia*, *L.*—This is called *Hippolathium sativum*, or "Monk's Rhubarbe," by Gerarde (*Herb.*, p. 313). His figure resembles *Rumex Hydrolapathum*, though our author describes the *Hippolapathum* of the Greeks as a distinct species. Wilson's (Fr. Dict.) gives *Hydro-lapathum* as *Patience*. Lindley describes *R. alpinus* as the species in question. Of other kinds of *Lapathum*, our author mentions *Serrol*, *R. acetosa*; and *L. acutum*, i.e., *Rumex acutus*, called in Picardy "Surelle."

Borago, *Boragae*, of which he says: "We use the blue flowers in the more refined salads." *Cerephyllum* "Cerfueil;" *Anthriscus cerefolium*, Chervil.

Tarco, "Du targon," the author does not know the plant, but says it has leaves like Hyssop. It is, of course, *Artemisia Taragona*, "Taragen;" and *Feniculus*, Fennel. This completes the list of salad plants.

THE CONDIMENT BED.—Cramben or Brassica, the Cabbage, of which there are many kinds, red, white, green, thick and thin-leaved sorts.

Atriplex, "Des Arroches," white and purple. These were species of *Chenopodium* and *Atriplex* as figured by Gerarde.

Molochia and *Atriplex maritima Mauritanis*, a shrub like *Halimus*, of which the leaves were cooked. Gerarde describes *Molochia* as a kind of Basil, called "Fish Basil," the seeds being received from Spain (*Herb.*, p. 549). Beta, "de la poree," the red kind was called Sicle, a second is white, and a third black. Blitum, described as the most insipid of herbs; it is a plant resembling Spinach, and called "des espinars," from its spiny seeds, probably *Amaranthus Blitum*.

Iasione, of Theophrastus, is a wild pot-herb, with a milky juice, bearing a white flower. Commonly called "Du liseron." This is *Convolvulus arvensis*, Bindweed.

Selinon (Grk.), *Apium* (Lat.), "Du persil Macedoine." This altogether resembles garden Parsley, but the scent is a little pleasanter. It was called *Petroselinum macedonicum* in the London *Pharmacopœia* until about 1760, when the use of it was dropped. Under *Selinon* the author adds *Atrum olus*, i.e., *Smyrniolum olusatrum*, Alexanders; and *Petroselinum*, i.e., *oreoselinum*, or Mountain Selinum, garden Parsley.

Crocus, probably *Crocus sativus*, cultivated for Saffron. *Sinapis*, Mustard, white and black, the seed being called "Seaeuë." This was the name variously spelt in the Middle English, e.g., fourteenth century.

Porri.—Two kinds. The Leek and the Ampeloprasum, "because it grows among the Vines." It is *Allium Ampeloprasum*, *L.*, our wild Leek. *George Henslow*.

(To be continued.)

ANTHRACITE COAL.

THERE was published in our issue for October 23 last a letter from Mr. Thos. Christy, which gave some interesting particulars relating to the use of anthracite coal in grates. The style of grate to which allusion was then made may be seen on reference to fig. 5. It has upright bars, and a pull-out frame at the bottom, the latter intended for use when more than ordinary draught is desired. It has a stone back, and probably many of our readers have seen similar ones. In this case, it was found that even when the damper at the bottom is quite closed, the draught is a very strong one. Wishing to turn this to account, Mr. Christy tried a quantity of anthracite coal, and it burnt perfectly, there being very little ash remaining when the fire is exhausted. Anthracite is moderate in price, is capable of producing intense heat, and lasts longer than any other coal. If certain grates ensure sufficient draught to cause this fuel to burn satisfactorily, its use will effect a considerable economy. Like coke, it will be found to burn with greater freedom in grates when broken into pieces about the size of a walnut.

HOME CORRESPONDENCE.

THE GALE.—This morning's gale (December 27), has blown down half of a beautiful Cedar on my lawn. One bough is about 18 inches in diameter, and a good length. Is it worth cutting into planks? *H. N. Ellacombe, Bolton.*

A WELL-TRAVELLED FLOWER.—Georgina Pitcher is a pretty and a melodious appellation. It may originally have been, and perhaps still is, the name of a very charming lady. It has, however, already become somewhat public property, as the appellation of a fine flower. *Chrysanthemum* Georgina Pitcher is a new yellow Japanese incurved, and is as good as solid. We heard the other day of the travels of flower Georgina, which was cut on November 8, was exhibited in a prize collection at the Westminster

Aquarium for three days, was next shown at Edinburgh, then on the 27th at the Westminster Drill Hall, and still came up smiling and fresh at the National Chrysanthemum Society's December show on the 7th inst. Is not that a record show attendance for one bloom. Evidently Georgina's "pitcher" is not easily broken. *D.*

CARNIVOROUS SLUGS.—Since the appearance of my note on the above, numerous correspondents from different localities have given various opinions. There seems to be little doubt they are strictly carnivorous, and I think there are few gardeners who would be inclined to destroy slugs they knew to be carnivorous, that they might encourage earth-worms, great as the part is they undoubtedly have played in Nature, as drainers and aerators of the soil. Their presence is not of so much importance where land is artificially drained and under cultivation, being constantly broken up by trenching, limeing, &c.; under such conditions, it is a question if the good they are able to do can compensate for the mischief of trying to get anything and everything into their burrows. Surely there can be no question about the presence of worms on lawns and tennis-courts, and it is my intention to transfer some from the kitchen garden to "burrow" but not "cast." It does seem strange, that during alterations carried out here for several years in various parts of the grounds, we have never found any except in the kitchen garden, where they are very numerous, and always in the soil. I am assured the variety is the true *Testacella haliotidea*. May not those found so freely on the surface by some of your correspondents be *T. scutellum*, or *T. Mangei*? There are many theories about the shell and its position—is it not simply rudimentary? So far little seems to be known of the life-history of *Testacella*, even by students of the Mollusca. Yet it is generally acknowledged by all that they are strictly carnivorous, as the radula (or tongue) clearly indicates, by the complete rows of incisor teeth, as compared with the central molar teeth of the herbivorous section. The all-important question to horticulturists is, do they live entirely upon earthworms or not? An authority on the subject writes me—"I am with you in believing that they are useful, and do not for a moment suppose that they feed exclusively on worms, but believe that they also feed on the larvae of many obnoxious insects." I have much pleasure in sending you living specimens of *T. haliotidea*, also photographs of the "radulas" of carnivorous and herbivorous slugs. *M. Webster, Beckenham.* [We shall shortly publish an illustrated article on the subject. *ED.*]

—This species is common here—Pembrokeshire, although Mr. Webster said that he never came across any in South Wales, or saw one of them out of the ground (see *Gardeners Chronicle*, p. 314, vol. xxii). For my part, I can state that I have found more of them on the surface of the ground than below it, and I could find one any day if I sought for it. It was only last week that I came across one of the slugs with its head thrust into a live snail, and I have often seen them devouring worms, but not snails. *W. Cavill, Penally.*

FRUIT JUDGING.—There is one point in "Ayrshire Lad's" note (p. 404), which well deserves to be considered by judges of fruit, viz., that of ripeness when shown. When the schedule distinctly says it is necessary that the fruit shown shall be ripe, judges have no choice in the matter; but the preference for ripeness (even when out of season) is carried to excess in many cases where it is not demanded by the schedule, and where ripeness is a positive defect. I need only instance the single-dish classes at the fruit show held under the auspices of the Royal Horticultural Society at the Crystal Palace. Time and again I have seen fruits that were ripened out of season placed before others that were in every way of better quality but not ripe. Which is the most valuable dish, say, of Marie Louise Pear, dead ripe in September, or a similar dish at the end of October or in November? We have plenty of good summer Pears, but not so many as the year advances, and to turn a late variety into an early one is doing quite the wrong thing. It is generally known, too, that the best-flavoured Marie Louise Pears are those grown in the open, where they have no artificial aids to ripening. It may be said that to lengthen the season of a good fruit is a gain, and I grant that, but do not think that this is a point which should weigh with judges. I have only instanced one variety, but it is not for want of others; the circumstance is common, and I might just as well have selected the variety Pitmaston Duchess. *Cornubian.*

PRUNING APPLE AND PEAR TREES.—Mr. Kettle having misrepresented (p. 448) my remarks made on the pruning of Apples and Pears, I beg the editor's permission to reproduce them. The cultural directions which Mr. Kettle has misrepresented, and then used as a basis for a somewhat lengthy criticism are:—"Upon the manner in which this simple though important operation is carried out depends almost entirely the building up of fruitful and consequently profitable specimens, whether they be standards, pyramids, bushes, or espaliers. However, it would be better to let the trees go unpruned than to trust an unskilful man with the pruning—that is, to allow a man having no clear object in view in operating on young or maiden trees. The formation of large fruit-bearing trees, of whatever kind, in as short a time as possible, is the wish of all who possess fruit-trees; therefore, the young leading shoots of standard pyramid trees and bushes, should be pruned back to within from 5 to 9 inches; each of these pruned-

being furnished with three wood-buds, and these having pushed into free growth were pruned back to from 5 to 9 inches last winter, each pruned-back shoot producing from three to five growths this year, thus giving us individual trees with from nine to fifteen growths from "last year's cut-back maidens;" and the only pruning which I advised to be done to these trees was, "Where likely to become crowded, or to cross each other in growth, to cut back to within 2 inches of last year's wood." Maiden fruit-trees, of whatever kind and shape, must be pruned-back in the manner mentioned above, in order to lay the foundation of well-balanced, fruitful specimens "in as short a time as possible." Mr. Kettle says, "if you have cut back either standards or bushes, they will have at least nine to twelve growths;" adding "if they are pruned back to 5 or 9 inches, and make three to five more growths, you will get from twenty-seven to sixty branches within 5 to 9 inches of the main stem," which in his humble opinion is far too many.

fruit; but, in the meantime, the few leading shoots attain to a greater height from the ground before they branch out than is desirable. Mr. Kettle says in concluding his note that "root-pruning is an operation entirely unnecessary (?) so long as the tree has room to extend its branches." The reverse of this being the case, I am inclined to think that the words "so long as the tree has room to extend its branches," must be a misprint for, so long as the tree yields satisfactory crops of fruit. [No.] Mr. Kettle cannot have read his *Gardeners' Chronicle* carefully during the past twenty years, or he would have known that I have been an advocate of the "extension system" of pruning and training fruit-trees during that period of time. In pruning horizontally-trained wall or espalier-trees of the Apple, Pear, and Plum, after the first pair of branches—extending right and left from the tree—is secured, the leading upright-central shoot should be cut-back to within 12 or 15 inches of the pair of horizontal branches of the current year's make at pruning time every year, until the top of the wall or espalier wires is reached, in order to obtain a new pair of branches every year. I have tried to secure two pairs of horizontal branches annually, but only with partial success; as some years only three buds, two on one side and one on the other, would push into growth, thereby rendering the insertion of a "bud" in the main stem, close to the dormant bud, necessary, in order to prevent a blank occurring in the building up of the tree. H. W. Ward, Rayleigh, Essex.

VITIS COIGNETÆ.—At Culford Hall, near Bury St. Edmunds, is growing a fine young Vine under the above name, which is the same way as that illustrated in your issue for October 30 (p. 305). It was planted out during the past spring to cover a portion of a wall facing west, and close to the north wall of the garden, so that it is well sheltered from east and north. Here it has grown vigorously, having made eight or ten young rods, each as strong as an ordinary pot-Vine prepared for fruiting, and about 10 feet long. At the time of my visit a few weeks ago, the large claret-coloured leaves were very effective, and the canes were well ripened. The Vine will become a very striking object in autumn, and the coloured leaves remain upon the plant later than those of any other deciduous climbing foliage-plant. J. C. T.

EARLY POTATOS.—In the efforts to obtain new Potatoes as early as possible in the year, various methods are adopted. The earliest are grown under glass in Peach-houses, vineries, or heated pits; then follow those from colder frames. Succeeding these will be those grown at the foot of a south wall, and then those on a warm, south border, between the rows of Peas, the stakes used for the latter forming a capital shelter for the Potatoes. I used to grow for the first crop the old Myatt's Ashleaf in pots placed in a newly-started Peach-house. Some time previous to potting, the tubers were placed in single layers in shallow boxes containing a little leaf-mould. The boxes were then placed in slight warmth, and occasionally sprayed over with water. When growth had commenced, all the weakest were rubbed off, leaving three of the best and strongest to each tuber. The 10-inch or 12-inch pots were then drained and half filled with a rather light, moderately rich soil, and three tubers planted in each. They were then lightly watered, and afterwards placed in as light a position as could be given them. The plants should be earthed-up when the tops have grown 8 inches, using soil that has previously been warmed to the same temperature as that of the house in which they are growing. Great care should be taken not to over-water them, for if the soil be kept too wet, failures are sure to follow, and a close stagnant atmosphere will be equally injurious. H. M.

ROYAL SOVEREIGN STRAWBERRY.—This variety did very badly with me last spring as a forcer for market supply, and was nowhere as against Laxton's Noble and Sir Joseph Paxton. It had long straggling fruit-stalks, and enough leaves on one plant to serve for two. Out-of-doors it was the same. I got my plants from a trustworthy firm, and I should be glad if some market cultivators would record their experience of this much vaunted variety. W. Cavill, Penally.

SULPHURING VINES.—Having repeatedly read in "Answers to Correspondents" your caution against burning flowers-of-sulphur in vineries that have been pruned, I take the liberty of informing them that this may be done with perfect safety. I have been

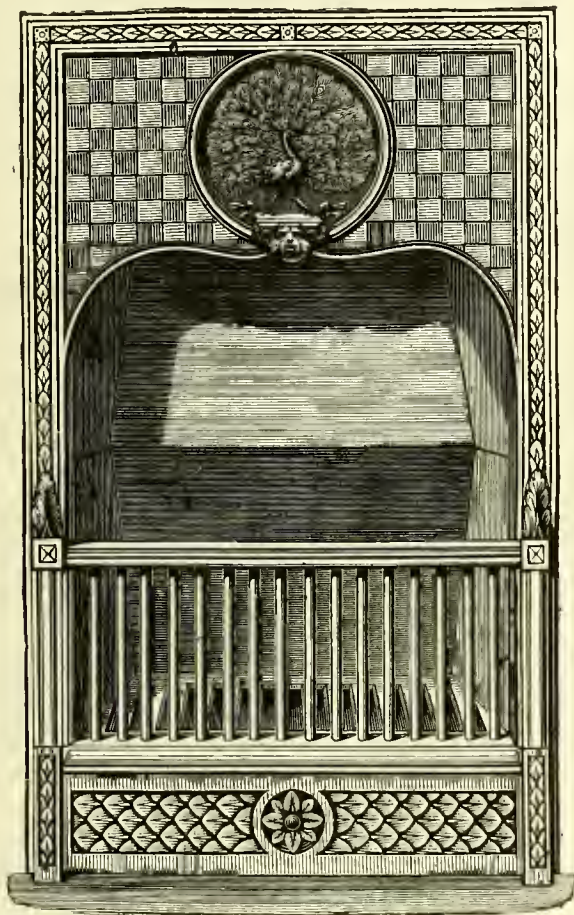


FIG. 5.—ANTHRACITE COAL GRATE. (SEE P. 12.)

back shoots will produce from three to five growths next spring. These—assuming that we have last year's cut-back maidens to deal with now—where likely to become crowded, or to cross each other in growth, should be cut back to within 2 inches of last year's growth. This will result in the formation of fruit-buds, in addition to promoting a symmetrical shape in the individual trees. Once young trees of this description have borne a fair crop of fruit, they will require very little annual pruning beyond the cutting out of a branch here and there where likely to cross each other, repeating the operation more or less every year as may be called for, until the trees acquire the desired size." Any reader who may take the trouble to read the above in connection with Mr. Kettle's comments thereon will easily see that he has quoted certain sentences therefrom without giving the context. Mr. Kettle appears to forget that "maiden trees" are not furnished with "six to eight growths to the main stem." Let us suppose that maiden trees, i.e., stocks grafted in the spring of 1896, each scion

Having made the above *pro contra* statements, for which Mr. Kettle himself is solely responsible, he is willing, however, to "grant that the badly-placed shoots can be taken off," adding, "but the writer does not advise this, but to cut back (such misplaced growths) to within 2 inches." What is this but taking off? Moreover, any shoots (two at the most) proceeding from the said 2 inches of lateral growth, should be pinched hard back the following summer, with a view to producing fruit-buds. Mr. Kettle goes on to say "he has yet to see a deciduous tree made shapely and fruitful by severe pruning." Well, he must be very young, and consequently inexperienced! I have frequently advised this in the case of neglected trees in orchards and gardens, in order to secure shapely and fruitful trees. If a young Apple, Pear, or Plum-tree is left to itself, i.e., not pruned at all, the pushing into growth of the buds or the upper portions of the individual shoots at the expense of those lower down will occur until the exuberance of growth is checked by the trees bearing a good crop of

in the habit of burning sulphur in my vineries for the past fifteen years, and have never seen one single instance of injury to the Vines, although the quantity of sulphur is never weighed, or the cubical area of the house measured. Our vineries are all about one length, but they vary in height; in a house with area of about 6000 cubic feet we use a 32-sized potful of sulphur (should suppose this would be about 5 lb.), but I do not believe any injury would be done to the Vines if double the quantity were used. *Experience.*

ABNORMAL TEMPERATURE.—It may be interesting to your readers to know the unusually high temperature recorded here on Saturday, 18th ult. On a small post, at about a foot from the ground, and quite in the open, a thermometer showed 74° at 11.30 A.M., and remained so for half-an-hour. *H. L. Wall, Roselands Nursery, Eastbourne.*

A FRENCH GARDEN IN 1545.—The plant referred to as a Hollyhock is *Tagetes patula*. It is still known in France as "Cillet d'Inde," and is mentioned in *La Maison Rustique* as "Cillet d'Inde ou Turquie," which *The Countrée Fayme* (1600) translates "Indian Gilloflower," giving at the same time the Latin names, "Flos Petillius" and "Ocellus indicus." "Coquelourde" includes "Flos Jovis," "Fleur de Jupiter," or "Lychnis flos Jovis." See Villmorin's publications, where *Anemone pulsatilla* is referred to "Anemone," and the other to "Coquelourde," which is practically synonymous with the English "Cockle" as applied to flowers. *R. P. B.*

DIOSPYROS KAKI.—Mr. Burbidge suggests, *Gard. Chron.*, p. 441, last vol., that in the south and west, near the sea, the plant might thrive and fruit in the open air. I have had it here for more than ten years, and it has often ripened its fruit; and three years ago I had over forty fruits on it, most of which ripened well. It has also fruited at Tortworth on quite a young tree. I wonder it is not more grown. It is quite hardy, and even as a foliage-plant it is well worth growing. *H. N. Ellacombe, Bitton.*

A HALL FOR HORTICULTURE.—I do not remember ever having seen it stated by anyone but Mr. Divers that the National Chrysanthemum Society "could not succeed apart from its music-hall associations." I have gone the length of stating that the National Chrysanthemum Society cannot possibly carry on four flower-shows in a year—covering the whole of the Chrysanthemum season—without some such assistance as that rendered by the Royal Aquarium. One fact cannot be disputed—that it was not until the Borough of Hackney Chrysanthemum Society became associated with the Royal Aquarium that it developed from a local society into one of national importance. Its growth without pause during the entire period of that association has been and is still phenomenal. Despite the large space the building affords, I find Mr. Divers and others complaining of its crowded condition, and of the difficulty experienced in seeing the flowers, and they suggest as a substitute a horticultural hall. It would require to be as large as St. Paul's Cathedral to meet the requirements of the National Chrysanthemum Society. The people go to the Aquarium despite its associations, and it is gratifying to notice an increase in the attendances at the September, October, and December exhibitions. Mr. Divers and others overlook the fact that hundreds who attend the Aquarium see, probably for the first time, fine displays of flowers, and in this way a new-born interest is aroused in many who are thereby induced to cultivate. I get substantial proof of this in various ways. I am further convinced that if the rank-and-file of the membership of the National Chrysanthemum Society were polled, there would be an overwhelming vote in favour of continuing the shows at the Aquarium. The entertainment, so much denounced by some, is a great source of attraction to numbers in the gardening profession. They meet friends there, they can talk together, and smoke, and drink if they please; there is warmth, and light, and life—and these are to them sources of enjoyment. The practical man notices these things; the sentimentalist and the theorist overlooks them. It is true the Edinburgh Chrysanthemum show was a great success, so was that at Birmingham; but at Manchester and other large centres they were dismal failures. Let Mr. Divers consider what has been the fate of large flower-shows in London during the past twenty years. The Crystal Palace is held to be a model place in which to hold a flower-show; the exhibitions formerly held there, with other attractions thrown in, failed to pay. Where are the great shows of the Royal Botanic

Society? Did the venture of the Royal Horticultural Society at the Agricultural Hall a few years ago answer? The reply is, they have not gone there since. All the prestige of the Royal Horticultural Society cannot induce the people to go and see a show in their Chiswick gardens; they cannot get their Fellows to the Drill Hall meetings. The series of fine exhibitions held at Earl's Court in 1892–93 failed to draw; as did those at Olympia two years ago. The National Rose and the National Dahlia Society would in all probability collapse were it not for the subsidies furnished by the Crystal Palace Company. Let the National Rose Society run a show in London without any outside financial assistance—I should predict financial failure. London cannot, and must not, be placed on a level with Edinburgh. There is a social homogeneity about the latter city lacking in the former. There is in London a vast variety of counteracting entertainments, not only in the centre, but all round the circumference; and there is scarcely an important suburb but has its own society and annual exhibition of Chrysanthemums in November. Apart from the difficulty of finding a place large enough to hold a show like that the N. C. S. holds in November, the cost of it would be enormous, the risk very great. The best experience which could come to Mr. Divers would be in taking charge of the details of a large flower show in London, and I am confident he would see things in their true light, and understand better why I, who have had a great deal to do with London flower shows in the past, have been led to think an exhibition held by the N. C. S. anywhere else but at the Aquarium would be incurring a heavy financial risk, I for one shrink from undertaking. (The figures 4000, third line, centre column, p. 449, should read 5000.) *Richard Dean, Ealing, W.*

LAW NOTE.

COOKSON v. SAMSON.

A CASE of considerable interest to bee-keepers was heard before His Honour, Judge Sir D. L. Selfe at the County Court, Romney, Kent, on August 19 last, in which the plaintiff, Mr. C. D. Cookson of Blean, Canterbury, sued the Rev. G. H. Samson of New Romney for damages for misrepresentation, or in alternative for breach of warranty. Mr. Percy Maylam, solicitor, Canterbury, represented the plaintiff; and Mr. F. C. Drury, barrister, instructed by Mr. Bracher of Maidstone, defended.

In view of its importance to the bee industry generally, and the more or less conflicting reports of the case given in the daily press, we have been at some trouble to secure a special and reliable account of the proceedings (from the reporter's notes) for the benefit of our readers, which will be found below. This explanation is made in order to account for the delay in publishing particulars; not from lack of interest, but as affording a reason why we did not acknowledge the scores of press-cuttings kindly sent by various readers for insertion in our pages.

In opening the plaintiff's case, Mr. Maylam stated that the plaintiff had purchased of the defendant twelve stocks of bees, which defendant had offered for sale in the *British Bee Journal* for October 22, 1896, as being "strong stocks of healthy selected grain black bees," the amount of purchase-money for the twelve stocks, and certain bee-keeping accessories, being £16. The plaintiff had bought the bees on the strength of the representation that they were healthy, as stated in the advertisement, and confirmed by subsequent verbal statements; whereas they were infected with foul brood, a bee-disease of a very serious kind, as being extremely destructive and infectious. Mr. Maylam explained the nature of the disease, and quoted from the leaflet issued by the Board of Agriculture on the subject. As a consequence, the whole of the stocks bought had died a short time after the purchase, having previously infected with the disease bees which had belonged to the plaintiff, and were healthy before the purchase in question from the defendant. He submitted that the defendant was liable, in the first instance, in contract, as the advertisement and representation amounted to a warranty, and argued that a bare representation or asser-

tion as to the quality of goods might amount to a warranty. Secondly, he (Mr. Maylam) submitted that the defendant was liable in tort for misrepresentation, on the ground that, being a certificated expert, he must have been aware of the state of the bees when he represented them as healthy, and evidence would be produced to show that he had been warned that foul brood existed among his bees before the sale took place.

His Honour the Judge, in giving his decision, said: I am of opinion that no case of misrepresentation has been made out, and am surprised that it has been brought. It appears that the defendant had no knowledge that the bees were infected with foul brood, and being an expert he considered his opinion as good as that of Mr. Hamlyn-Harris. With regard to the question of warranty, it is plain that the bees were described as he althly in the advertisement, and we have the statement of the plaintiff that they were described as healthy to him, and he bought them relying on that assurance. On the first occasion the plaintiff did not examine; on the second he did; but only to the extent of ascertaining how many frames were covered with bees. It appears to me that the defendant did sell them as healthy bees, and that the plaintiff relied on the misrepresentation of the defendant that the bees were healthy; therefore there has been a warranty. Now, we have seen they were seriously infected, therefore there has been a breach of warranty, and the verdict will be for the plaintiff for the amount claimed, with costs.

Obituary.

MR. JAMES BROWN.—It is with much regret that we record the death, in the sixty-fifth year of his age, of Mr. James Brown, gardener to Capt. D. Moray, of Abercainey, Perthshire, on December 22, after over forty years' service there. The deceased was one of the best-known gardeners in Scotland, and he was for many years a keen and successful exhibitor of vegetables, and hardy fruits at the leading horticultural shows at Perth, Dundee, Edinburgh, and Glasgow; and owing to his extensive knowledge and to his well-known conscientiousness in awarding prizes, he was frequently asked to officiate as judge at such shows. His work at Abercainey and his devotion to his employer's interests, were duly appreciated by his gallant employer. Mr. Brown succeeded his father-in-law, the late Mr. James Arnot. Abercainey was the home of the McIntoshes of Dalkeith and Drumlanrig Gardens, and is one of the most beautiful of Scottish seats. *M. Temple, Carron, N.B.* [The gardener's cottage was figured in our issue for February 17, 1894. Ed.]

SOCIETIES.

ROYAL HORTICULTURAL. Scientific Committee.

DECEMBER 14.—*Present:* Dr. M. T. Masters (in the chair) Mr. Michael, Rev. W. Wilks, Mr. Sutton, Prof. Church, and Rev. G. Henslow (Hon. Sec.).

Cypripedium, Monstrous.—With reference to the specimen sent to the last meeting by Mr. Veitch, Dr. Masters reports that the lip was wanting, but the dorsal and ventral sepals as well as the lateral petals were normal; both stamens were present, but only two carpels, standing in an antero-posterior position.

Tuberous Growths on Vines.—Mr. S. T. Wright sent some gall-like structures taken from Vines in the large vinery at Chiswick. He observes that "many of the old and young rods are similarly malformed at their base. It does not appear to affect the health and vigour of the rods. In all the malformations grubs or maggots are present; but neither moths nor weevils have been seen in the house." Mr. Michael pronounced the grubs to be coleopterous, but they were not likely to have been the cause. Professor Church undertook to examine them chemically. There was no apparent structure in them beyond a mass of cellular-tissue with a corky exterior surface.

Hellebores Diseased.—Some badly diseased plants were received from Mr. F. W. Burbidge, Botanic Gardens, Dublin. They were submitted to Kew for examination. The report was as follows:—"Phoma effusa, Desm., is the name of the fungus attacking the Hellebores. The diseased portions

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NORTH BRITISH WHARF, WOOD GREEN, LONDON, N.

 CARRIAGE PAID QUOTATIONS TO ANY DISTRICT IN THE UNITED KINGDOM.

should be removed and burned, as at this season the fungus is producing myriads of spores, which live as saprophytes on humus in the soil for some time before they are capable of acting as parasites. The Hellebore shoots of next year will be infected by these spores. The above alternation from a parasitic to a saprophytic mode of life enables the fungus possessing one form of fruit only, as in the present instance, to tide over the period during which its host-plant is not actively growing. Spraying with a solution of potassium sulphide (1 oz. to 3 gal. of water) when the leaves first appear next season would, to some extent, prevent the chances of inoculation from floating spores."

Holly with Red and Yellow Berries.—Mr. Ch. Turner, Slough, sent some sprays, on which he remarks, "They are cut from a large tree which retains its berries for two years. The berries are yellow in the first year, but change to red in the second year." As no seasonal break was distinguishable between the group of yellow and that of the red berries below it on the same stem, some doubt was expressed, and some further information desired. This Mr. Turner has kindly promised to furnish.

NORTHAMPTONSHIRE CHRYSANTHEMUM.

DECEMBER 15.—The annual meeting of this Society was held at the Racehorse Inn, Abingdon Square, Northampton, on the above date, under the presidency of Mr. F. Perkins.

The receipts for the year were stated in the report to have been £160 12s. 9d., and there was a balance of £5 6s. 11d. on the year. The report was adopted, and then the election of officers was proceeded with. Mr. Labouchere, M.P., was chosen president, and the whole of the vice-presidents were re-elected *en bloc*, with the addition of Mr. Cole, of Hazelwood Road. Mr. E. Draper was re-elected hon. secretary and sub-treasurer.

NEWCASTLE AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.

DECEMBER 21.—The monthly meeting of this Society was held at 25, Westgate Road, Newcastle-on-Tyne, on the above date, Mr. BULLOCK presiding.

This being the first of a series of competitions, certificates were offered for the best stand of cut flowers of Japanese Chrysanthemums, distinct varieties. There were five entries, all of which were of exceptional merit. The best were shown by Mr. MUNRO, Enfield, Gateshead; and Mr. ROME, Oakwood, Wylam-on-Tyne.

Special certificates were also awarded to Mr. LARKE, of North Dene, Gateshead, for a large and beautifully-arranged vase of Chrysanthemums; and to Mr. HALL, Heathdale, Gosforth, for an excellent stand of Chrysanthemum Niveum. A general discussion took place on the "Cultivation of the Chrysanthemum," in which many of the thirty-five members present took part.

SCOTTISH HORTICULTURAL ASSOCIATION.

DECEMBER 21.—A *conversazione*, attended by about 150 ladies and gentlemen, was held in the Royal British Hotel, Edinburgh, on Tuesday evening, December 21, by the Scottish Horticultural Association. The guests were received by the President (Mr. Todd), who was accompanied by Mrs. Todd, in the new dining-room, the centre table of which was decorated with Chrysanthemums. The chief purpose of the gathering was the announcement of the allocation of the surplus funds derived from the recent successful Chrysanthemum show held in the Waverley Market, which, it had been resolved, should be devoted to charitable purposes. In the course of the evening the President intimated the Association's decision. Addressing the gathering, he said they were assembled to celebrate the harvest-home of the recent Chrysanthemum show. That show was one of the most successful ever held in Edinburgh. After all expenses had been paid, there was a balance of £250. They had resolved to give £100 to the Royal Infirmary pavilion scheme, £50 to the Royal Hospital for Sick Children, and, as their exhibition depended largely for its success on horticulturists all over the kingdom, £50 would go to the Gardeners' Orphan Fund, and £50 to the Gardeners' Royal Benevolent Institution. The Treasurer of the Association (Mr. McKenzie) then presented the Lord Provost with a cheque for £100 for the Infirmary pavilion scheme, and also handed a cheque for £50 to Mr. Cook, C.A., Treasurer of the Sick Children's Hospital. The donations were suitably acknowledged.

DEVON AND EXETER GARDENERS'.

DECEMBER 22.—An interesting lecture on "Insectivorous Plants" was read by Mr. NORMAN GILL, gardener at Tremough, Penryn, Cornwall, on the occasion of the meeting on the above date. He said that while these plants were known to botanists in the last century, public attention was not directly called to the peculiar properties of Sundews, Butterworts, and Bladderworts, until Darwin, in conjunction with Sir J. D. Hooker, awakened an interest in the subject. We could only muster twelve indigenous species and two sub-species of insectivorous plants; the more notable *Nepenthes*, *Sarracenia*, &c., coming from foreign lands. The Sundew, however, was a good type, and showed

clearly enough how such plants captured insects. The leaves were fringed and covered with outstanding, bristling, crimson hairs, each of which was furnished at the tip with a globule of viscid matter, and when an insect came in contact with this fringe it was held fast, the hairs began to incline backward and inward to the centre, carrying the captive with them. The secretion resembled in its effects the gastric juice of the human stomach, and performed the work of digestion for the plant, extracting and absorbing the food, which, through this channel, was conveyed to the leaf first, and by it to the plant itself. When the process was complete, the leaf-hairs were extended as before. Some of these plants had scarcely any roots, the natural functions of these organs, by disuse, having ceased to be used for feeding the plant. When an insectivorous plant was fed by nitrogenous manure at the roots, its insect-eating propensity became languid and feeble, showing that these plants had an alternative means whereby they lived. It was assumed, and held by many botanists, that some plants had out-lived the insectivorous stage, and had become root-feeders; *Parnassia palustris* being mentioned as an instance of this kind of reversion. An instructive discussion on the root action of the *Sarracenia* followed. Several good specimens were on the table to illustrate the paper.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

The last fortnightly meeting for the season 1897 was held recently in the Abbey Hall, and was presided over by the President, Mr. C. B. STEVENS. A very large number of members attended, to hear a paper entitled "A Chat about Chrysanthemums," by Mr. H. J. Jones, of Lewisham, the well-known exhibitor and grower.

The paper was given in a very interesting and "racy" manner, and contained much practical advice and many illustrations. The paper was divided into several sections, such as propagation, composts, potting, manuring, watering, insects, housing of the plants, exhibiting, &c.

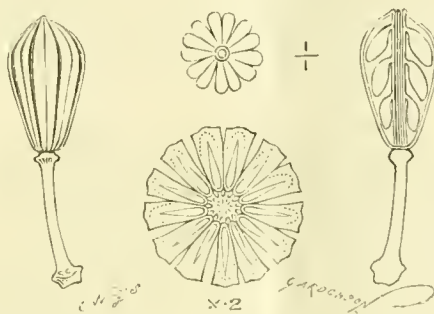


FIG. 5.—SEED VESSEL OF EUCRYPHIA PINNATIFOLIA.

A splendid exhibit of flowers, &c., by the members greatly added to the interest of the meeting. Messrs. SUTTON & SONS sent some beautiful specimens of *Cyclamen*, including Sutton's Salmon Queen, Vulture, White Butterfly, &c. Mr. TOWNSEND, Sandhurst Lodge Gardens, staged some grand plants of *Primula obconica*. Mr. BRIGHT sent dwarf plants of *W. H. Lincoln Chrysanthemum*, showing the decorative value of plants grown in 3-inch pots; and Mr. BRADLEY, Tilchurst Nurseries, exhibited cut blooms of *Chrysanthemums*, and a basket of Mushrooms. Mr. WOOLFORD, East Thorpe Gardens, contributed beautiful plants of *Begonia Gloire de Lorraine*.

FLAX PRODUCE IN IRELAND.

It is interesting to learn that a note of improvement has been sounded in the sister isle. Thus we are told that capital is finding its opportunity up and down the country; railway rolling-stock is being over-hauled and brought up-to-date; hotels are being either improved, extended, or built, on likely routes for tourists; and, though last, not least, attention is being paid to improvements in Flax culture, with the view of reducing the amount imported from abroad—extending an industry which is of prime importance to the North of Ireland more especially. In this connection we are told by an authority that among the Flax shown at Belfast the other day was some from Dromore, co. Down, grown under the supervision and direction of an expert Flax farmer, brought from Holland by Messrs. William Barbour & Sons, of Hilden—the large-linen thread manufacturers, whose services had been placed at the disposal of some of the farmers in the Dromore and Dromata districts who were in the habit of growing Flax every year, and who could be prevailed upon to

try for themselves if there was any advantage to be derived by following the customs adopted in other countries in reference to Flax-growing. The experiments show that by greater care and attention on the part of the farmer and the scutcher, Flax would be grown at a much more remunerative rate than at present, and that it would not be necessary to import so much every year from the Continent. Heaven helps those who help themselves, truly. The Cork butter market has felt all this—other folks may safely follow the example; and so, by-and-by, the sight of so-called "picturesque beggars" infesting all popular routes and "show places" may become as rare as it at present has to be deplored. Work is a fine humaniser and breeder of content.

EUCRYPHIA PINNATIFOLIA.

THIS very handsome hardy shrub is not so well known as it should be. Perhaps now that it has ripened its fruits it may become more common. The capsules illustrated (fig. 6) came from the garden of Miss Breton, of Sandhurst, Berks, a lady, who by her love of plants, enables them to overcome the disadvantages of a site that is not in all points an ideal one for gardening. The fruit is a capsule, bursting along the partitions (septicidally), and each of the ten or twelve cavities contains two rows of pendulous seeds,

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM INSIGNE VAR. SANDERÆ.

A PLANT of this variety, a small portion of the Pickering Lodge plant, is now coming into flower in the Tyntesfield collection. Mr. Hardy intends to exhibit it at the next meeting of the Royal Horticultural Society, January 14, so perhaps the writer of last year, who knew more of our plants than we do ourselves, will have an opportunity of explaining the difference between this and the true variety, *T. S.*

THE WEATHER.

[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.				
	Above (+) or below (−) the Mean for the week ending December 25.	ACCUMULATED.			More (+) or less (−) than Mean for the Week.	No. of Rainy Days since January 3, 1897.	Total Fall since Jan. 3, 1897.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 3, 1897.		
		Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since January 3, 1897.							
										Below 42°, difference from Mean since January 3, 1897.	
Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.	In.						
0	5	0	62	+ 195	+ 14	12	224	43.7	15	23	
1	5	0	70	+ 35	+ 27	6	198	28.5	21	31	
2	12	0	42	+ 105	+ 93	5	179	23.9	14	32	
3	2	0	46	+ 134	+ 119	5	168	22.6	23	37	
4	3	0	54	+ 72	+ 127	6	172	26.6	21	35	
5	0	aver	4	26	+ 259	+ 214	6	162	25.7	45	39
6	3	0	37	+ 133	+ 61	12	215	44.1	14	31	
7	2	0	32	+ 188	+ 181	8	103	36.0	27	34	
8	0	aver	8	20	+ 268	+ 153	10	199	42.3	36	33
9	2	+ 11	22	+ 85	+ 20	8	227	38.9	26	30	
10	4	+ 26	0	+ 249	+ 116	8	212	45.2	25	33	
*	1	21	4	+ 416	+ 92	8	211	35.0	47	41	

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending December 25, is furnished from the Meteorological Office:—

"The weather during this week was generally fine, dry, and cold, over Great Britain; a good deal of fog prevailed at times over the inland parts of England. Over Ireland the conditions were, as a whole, fine, dry, and mild.

"The temperature was below the mean in Scotland, and nearly all parts of England, but just equal to it in 'England, S.' and 'S.W.' In the north and east of Scotland the deficit was as much as 5°. Over Ireland the average for the week varied from 2° to 4° above the normal. The highest of the maxima was recorded on the 19th over England, but on the 25th in most parts of Ireland and Scotland; they ranged from 55° in the 'Channel Islands' and 51° in 'Ireland, S.' to 47° in 'England, E.' At some of the northern Scotch stations the daily maxima were on several occasions below 32°. The lowest of the minima were registered between the 21st and 24th, and ranged from 12° in 'Scotland, E.' (at Nairn), 14° in 'Scotland, N.' (at Lairg), and 19° in the 'Midland Counties' and 'Scotland, W.' to 32° in the 'Channel Islands,' and 34° in 'Ireland, S.' The mean of the minima was as low as 17.4° at Nairn, and 19.2° at Lairg.

"The Rainfall was entirely absent from most districts, but slight amounts were measured at some of the western and northern stations towards the end of the week.

"The Bright Sunshine exceeded the mean in all districts excepting 'England, N.E.' and 'Scotland, W.' the excess being very large in the south and south-west. The percentage of the possible duration ranged from 47 in the 'Channel Islands' and 45 in 'England, S.' to 36 in 'England, S.W.' 25 or 26 in Ireland, 15 in 'Scotland, N.' and 14 in 'England, N.W.' and 'Scotland, W.' The highest percentages recorded at any individual station were 70 at Jersey, 61 at Westbourne, and 59 at Hastings."

MARKETS.

COVENT GARDEN, DECEMBER 30.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arums, 12 blooms...	4 0-6 0	Mignonette, dz. bn.	2 0-4 0
Azalea, doz. sprays	0 9-1 6	Orchids:—	
Bouvardias, pr. bun.	0 6-0 8	Cattleya, 12 bms.	6 0-9 0
Osmundas, pr. doz.		Odontoglossum	
bms...	1 0-3 0	crispum, 12 bms.	2 0-4 0
Chrysanthemums,		Pelargoniums, scar-	
p. doz. blooms...	0 6-2 6	let, per 12 bun.	5 0-9 0
— p. doz. bunches	3 0-6 0	— per 12 sprays...	0 6-9 0
Eucharis, per dozen	4 0-6 0	Pyrethrums, per 12	
Gardenias, doz. bms.	3 0-5 0	bunches	1 6-2 6
Hyacinth, Roman,		Roses, Tea, per doz.	0 6-1 0
dozen sprays	0 6-1 0	— yellow (Pearls),	
Lilac, French, per		per dozen	2 0-4 0
bunch	3 0-4 0	— pink, per doz.	1 6-2 6
Lilium Harris, per		— Safrano, p. doz.	1 0-2 0
doz. blooms...	4 0-6 0	Stephanotis, dozen	
Lily of the Valley,		sprays	4 0-6 0
dozen sprays	1 0-2 0	Tuberose, 12 bms.	0 3-4 0
Maidenhair Fern,		Violets, 12 bunches	1 6-2 0
per 12 bunches...	4 0-8 0	— Parme, French	3 0-4 6
Marguerites, per 12		White Narciss,	
bunches	2 0-4 0	French, 12 bun...	1 0-2 0

ORCHID-BLOOM IN VARIETY.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantums, p. doz.	4 0-12 0	Evergreen shrubs,	
Aspidistras, per doz.	12 0-30 0	in variety, doz...	6 0-24 0
— specimen, each	5 0-15 0	Ferns, small, doz...	1 0-2 0
Azalea, per dozen	30 0-42 0	— various, doz.	5 0-12 0
Chrysanthemums,		Ficus elastica, each	1 0-7 6
p. doz. pots	5 0-9 0	Foliage plants, per	
— specimen, or		dozen	12 0-36 0
large plants, ea.	1 6-2 6	Liliums, various,	
Cineraria, per doz.	9 0-15 0	per dozen	12 0-18 0
Cyclamen, per doz.	12 0-18 0	Marguerites, p. doz.	6 0-9 0
Dracenas, each	1 0-7 6	Mignonette, p. doz.	4 0-6 0
— various, p. doz.	12 0-24 0	Palms, various, ea.	2 0-10 0
Ericas, various, per		— specimens, ea.	10 6-84 0
dozen	9 0-18 0		

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples (Blenheim		Grapes, Muscats, se-	
Orange), se-		lected, per lb...	4 0-5 0
lected, per		Nuts, Cobs, per	
bushel...	7 0-10 0	100 lb...	21 0-22 0
— (Wellingtons),		Pine-apples, St. Mi-	
selected, bush.	9 0-11 0	chael, cases con-	
Grapes, Gros Col-		taining 6 to 8	
mar, per lb...	2 0-2 6	each	3 6-6 6
— 2nd qual., lb.	1 9-2 0	— cases contain-	
— Alicante, p. lb.	1 9-2 0	ing 10 to 12	
— 2nd quality		each	1 6-2 6
per lb.	1 6—		

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Artichokes, Globe,		Mushrooms (Indoor)	
per doz.	2 6—	per lb...	0 6—
— Chinese (Sta-		Onions (pickling),	
chys tuberifera),		per pocket	2 0-3 0
per lb...	0 3-0 4	— Dutch, per bag	3 0-3 6
Asparagus (Paris),		— Albanian, per	
Green, p. bble.	4 0-5 0	bag	4 0-4 6
Beans (Madeira),		Radish (long scar-	
per bush. (about		let), Channel	
6 lb.)	2 0-3 0	Islands, per 12	
— French, Chan-		bunches	0 6-0 8
nel Islands, lb.	1 0-1 3	Rhubarb (forced),	
Beetroots, p. bush.	1 3-1 6	per doz. bundles	1 6-1 9
Capsicum, Chili, p.		Salad, small, per	
100	1 6—	doz. punnets...	1 6—
Cauliflowers, per		Seakale, per punnet	
dozen	1 9-2 0	(3½ to 4 lb.)...	1 0-1 3
Cucumbers, home-		Shallots, per lb.	0 2—
grown, select,		Sprouts, per ½ bush.	0 9-1 0
per doz.	9 0-12 0	Tomatoes, Canary	
Garlic, per lb.	0 2—	Islands, per	
Horseradish (Ger-		case, 40 lb.	10 0-12 0
man), per bundle	3—	— 14 lb.	3 0-3 6

POTATOS.

Holidays have interfered with trade as usual. Second-class Potatoes have again advanced a shade:—Up-to-date, 95s. to 115s.; Maincrop, 85s. to 110s.; Saxons and Bruce, 85s. to 100s.; Dunbar Maincrop, 130s.; Blacklands, 75s. to 80s. per ton. Belgian and Dutch Ware, 3s. to 3s. 6d.; German do., 3s. 6d. to 5s. per bag of 50 kilos. John Bath, 32 and 34, Wellington Street, Covent Garden, W.C.

SEEDS.

LONDON: December 29.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that to-day's market, as is always the case at the turn of the year, presented quite a holiday appearance, and quotations all round are consequently without any material alteration. The absence this past autumn of the customary speculative dealings in Clover and Grass-seeds naturally leaves a large consumptive sowing business to be done in the approaching spring. Full prices are asked for Mustard and Rapeseed. Blue Peas and Haricot Beans also keep very firm. In Birdseeds there is but little doing. Linseed steady.

FRUIT AND VEGETABLES.

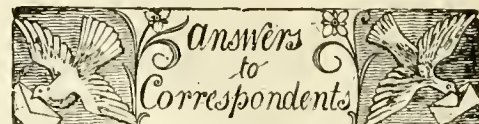
GLASGOW: December 29.—The following are the averages of the prices at this market during the past week:—Pears, 3d. to 8d. per lb.; Apples, 2d. to 4d. do.; Plums, 4d. to 6d. do.; Tomatoes, Guernsey, 4d. do.; do., Scotch, 5d. to 7d. do.; Grapes, home, 2s. to 3s. do.; do., foreign, 4d. to 6d. do.; Cabbages, Scotch, 6d. per dozen; do., late, 1s. to 1s. 2d. per dozen; Cauliflowers, 1s. to 2s. per doz. bunches; Parsnips, 4s. to 4s. 6d. per cwt.; Herbs, assorted, 1d. to 2d. per bunch; Leeks, 1s. 6d. to 3s. 6d. per dozen bunches; Mint, 6d. per bunch; Onions, Dutch, 2s. 9d. to 3s. per bag; do., Portugal, 5s. to 6s. per case; Parsley, 9d. to 1s. per stone; Potatoes, best, 8d. to 9d. stone; Carrots, 2s. 6d. to 3s. 3d. per bag; Artichokes, 3s. 6d. per sieve; Cucumbers, 8s. to 9s. per dozen; Lettuces, round, 6d. to 1s. do.; Cos, 6d. to 8d. do.; Radishes, 8d. to 9d. per dozen bunches; Horseradish, 1s. 6d. to 2s. per bundle; do., French, 4s. 6d. per stone; Mushrooms, 1s. to 1s. 2d. per lb.; Beetroot, 6d. to 7d. per bunch; Brussels Sprouts, 1s. 6d. per stone; Spinach, 2s. do.; Turnip-Swedes, 1s. 2d. per bag; do., Scotch, 2s. 6d. to 3s. per dozen bunches; Celery, Scotch, 1s. per bundle; do., English, 2s. do.; Red Cabbage, 1s. 6d. to 2s. per dozen; Savoys, 1s. to 1s. 3d. per dozen.

LIVERPOOL: December 29.—Averages of the prices at under-noted markets:—St. John's: Potatoes, 10d. to 1s. 2d. per peck; Cucumbers, each 10d. to 1s.; Grapes, English, 2s. to 3s. per lb.; do., foreign, 6d. to 8d. do. Pine-apples, English, 4s. to 7s. each; Mushrooms, 1s. 6d. per lb. Birkenhead: Potatoes, 1s. per peck; Grapes, English, 2s. 6d. to 3s. 6d. lb.; ditto, foreign, 6d. to 8d. ditto; Pine-apples, English, 7s. to 10s. each; ditto, foreign, 4s. to 7s. each; Mushrooms, 1s. 6d. to 2s. per lb. North Hay: Potatoes, per cwt., Giants, 3s. 6d. to 3s. 9d.; Main Crop, 3s. 9d. to 4s. 6d.; Bruce, 3s. 8d. to 4s.; Turnips, 6d. to 10d. per dozen bunches; Carrots, 4d. to 6d. per bunch; Onions, English, 3s. 6d. to 4s. 3d. per cwt.; do., foreign, 2s. 6d. to 3s. do.; Parsley, 6d. to 8d. per dozen bunches; Cauliflowers, 1s. to 3s. per dozen; Cabbages, 6d. to 8d. do.; Celery, 6d. to 1s. 4d. do.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending December 25, and for the corresponding period of 1896, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1896.	1897.	Difference.
	s. d.	s. d.	s. d.
Wheat	30 9	34 4	+ 3 7
Barley	24 1	26 11	+ 2 10
Oats	16 1	17 0	+ 0 11



BOOK: W. Y. "Table Decorating." There is no such book published. Miss Annie Hassard's is out of print, and may only be met with at the second-hand book-shops.

CORRECTION.—P. 430, col. a, line 18 from the top, for Chrysanthemum Leonie Service, read Seince.

MULBERRY: Barton. Secure, if possible, straight branches, 1 inch to 2 inches in diameter, and 3 feet to 4 feet in length; cut off the butt end square, and trim off the lateral shoots; then make a hole with a crowbar 1½ to 2 feet deep, in rich soil; drive down the Mulberry stake to that depth. In the first year a few roots and leaves will be emitted.

NAMES OF FRUITS: P. C. P. Apples unknown; seem to be Cider varieties.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—C. W. No. 5, Gleditschia sp. Cannot name other trees from material sent.—C. G. 1, Lonicera brachypoda; 2, Viburnum Tinus var.—H. E. R.—The Cypripedium insignis flower sent certainly is peculiar in the particulars you mention, but it is not a showy form.—E. C. H. P. Yours is the only true pure white form, and it is called Dendrobium Phalaenopsis hololeuca, to distinguish it from the several varieties, with a very slight trace of pink on the lip, which are called "alba" in gardens.—P. C. P. We cannot undertake to name hybrid Veronicas.—E. M. P. The blooms were past recognition; send fresh ones to a Chrysanthemum specialist.

POINSETTIAS: H. J. C. The bracts are fine ones, and, as you imagine is the case, the colour is inclined to crimson rather than to the usual scarlet—a difference doubtless due to something in the soil in which they grow, or to the sort of manure applied.

TOMATOS AND MANURING: Perplexed. Assuming that your land is poor in those ingredients the plant requires, owing to its being repeatedly cropped with Tomato plants, you should apply the following: for every 100 lb. of fruit taken from the soil approximately, nitrate of soda, 14 oz.; dissolved bone black, 5 oz.; muriate of potash, 10 oz.

TOMATOS FOR FRUITING UNDER GLASS FOR MARKET: Perplexed. Chemin Rouge, Duke of York, Ham Green Favourite, Hackwood Park, Young's Eclipse, the last an extraordinary prolific variety.

TULIPS: T. Dodd. The bulbs should have been potted in September and October, and kept cool and in the dark till plenty of roots formed, and some amount of top-growth showed. They can be grown planted thickly in boxes filled with soil, the early single-flowered and early double-flowered being kept separate, and late ones also by themselves. Bottom-heat is a help, but it is not essential. The best you can now do with the bulbs is to plant them in the open, take them up when the foliage turns brown, and make an early start next autumn.

COMMUNICATIONS RECEIVED.—H. R. W., Stuttgart.—D. T. F.—W. C.—A. G., Grenada.—Ashford & Son, Jersey.—J. A.—W. T. T. D.—J. W. H., Trinidad.—C. W. K.—H. C.—B. D. J.—Dobbie & Co.—J. O'B.—E. P., Ghent.—E. W.—E. W. B.—M. H. S.—A. Franchet, Paris.—H. W. W.—Valentine & Sons.—R. H. P., Penzance.—E. M.—T. Campbell.—E. C.—J. Mayne.—D. T. F.—R. L. H.—M. D.—H. M.—H. R. Hayle.—D. R. W.—F. C. E.—C. W. S.—H. W.—E. W. B.—G. H., California.—W. M. W.—D. J., Floresta, Buenos Ayres.—G. Farmer.—P. E.—Borough Engineer, Cheltenham.—A. R. S., U.S.A.—W. S.

PHOTOGRAPHS, SPECIMENS, ETC., RECEIVED.—J. H. H. Trinidad.—D. J., Buenos Ayres.

CONTINUED LARGE INCREASE in the CIRCULATION of the "GARDENERS' CHRONICLE."

Important to Advertisers.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper, and that it continues to increase weekly.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES of GARDENERS and GARDEN-LOVERS at home, that it has a specially large FOREIGN and COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE

Gardeners' Chronicle.

SATURDAY, JANUARY 8, 1898.

OLD ORCHARDS.

OFFICIAL returns give a total exceeding 112,000 acres as devoted to orchards in the counties of Herefordshire, Devonshire, Somersetshire, Gloucestershire, and Worcester-shire, this being considerably more than half the acreage occupied with orchards in the whole of England. At first sight this total looks very encouraging, for all who believe that no better Apples are grown than those produced on British soil; but unfortunately it is misleading, and, like many bare official statistics, requires investigation before a correct idea can be formed of the true meaning. A survey of the counties named gives a different aspect to the question, and I have no hesitation in saying that one-half of the acreage recorded is occupied with worthless trees, or with those that are rapidly approaching this condition. This opinion is not the result of a cursory examination, but has been formed after some years of observation and repeated journeys through the chief districts of the five counties mentioned. The subject has been impressed upon my mind most forcibly by recent opportunities for studying the matter, and it seems to me of such importance that I have submitted this brief review of the subject to the Editor of the *Gardeners' Chronicle*, in the hope that he may be able to find space for it in its widely-read pages.

When the general extension of orchard planting in England took place, in the beginning and towards the middle of the seventeenth century, the principal object in view was the production of cider. It is recorded that Lord Scudamore, when ambassador in France during the reign of Charles I., obtained from Normandy large numbers of scions of the best cider Apples, which were introduced into Herefordshire and distributed throughout the county.

When Dr. John Beale published his treatise on the Hereford orchards in 1657, he considered them "a pattern for the whole of England," and there is abundant evidence from his and other's writings that in these early days considerable and careful attention was given both to the selection of varieties and to general cultivation. But Herefordshire seems to have been well in advance, though, in later years, both Somersetshire and Devonshire became equally celebrated, and for a period, the last-named county was pre-eminent for its cider production. Certainly, when Hugh Stafford's *Treatise on Cider Making* appeared in 1729 it was an important industry there, and had been so for many years. In the course of the seventeenth century, many writers contributed greatly to the extension of Apple culture, and it must be said that the

methods advocated in the majority of cases were very closely in accord with the best practice of modern times. The varieties were, however, all primarily selected for their qualities as cider-fruits, enormous quantities of this beverage were manufactured, and for a time the best brands are said to have effectually taken the place of the French and German wines amongst the higher classes; while it was also the labourer's constant drink. In the latter case, after a time, fermented malt liquors gradually superseded the lighter cider, and to this end, probably, less careful methods of preparation had contributed. As the cider industry declined, so the interest in the orchards waned; and as large numbers of the trees were of varieties unfitted for other use, the fruit was of little value for sale, and the plantations were simply left to themselves.

What is too painfully evident in the majority of the old orchards at the present time is not the result of ten or twenty years' neglect, it is the effect of a decadence of interest which must in many instances date back to or beyond the beginning of the nineteenth century. It has been variously estimated that an Apple-tree will live to an age of 200 to 1,000 years, but there is little doubt the most profitable period in the life of a standard Apple-tree on the crab stock, is from twenty to sixty or eighty years; at least so far as my experience and observation extend where the age of the trees is definitely known, this appears to be the time when the greatest crops are borne, though in regard to healthy trees the period may be prolonged to 100 years or more. This of course is assuming that the best cultivation has been consistently followed throughout, as even with neglect the Apple will "exist" for many years, but only occupying ground uselessly, serving as a harbour for insects innumerable, and the germs of diseases that may infect other trees. A very short time suffices for a tree to get into a bad state by neglect; it is astonishing how quickly the evil is done, and unless very promptly remedied by improved treatment the tree can never become a source of profit. The worst results are occasioned by neglect in the early stages of the tree's existence, because when once thoroughly stunted very little can be done to alter it, and the best treatment seems lost. By far the most serious neglect is in the want of attention to cultivating the soil over the roots and around the trees. The older writers generally agreed in advocating tillage for the soil in orchards, and the general experience of fruit growers is in favour of this at the present time, both here and in America; yet we find nearly the whole of the orchards in the counties named at the beginning of these notes, planted in grass. The chief arguments I have heard in support of this system are poor indeed, and one is in itself a proof of the careless methods adopted in gathering fruit. A farmer who has an extensive orchard of Apples on the borders of Devonshire, the trees in which are more remarkable for their clothing of cryptogamic plants than for their healthy appearance or crops of fruit, says the "Apples don't get mucked up with dirt when knocked or shook off the tree on to grass." The other reason is, that the grass affords a useful grazing-ground for stock. This has some force when the orchard is attached to a cottage or small holding where there is possibly no pasture; but on an ordinary farm, with the usual proportion of feeding-ground, it is not worth consideration in the face of the injury resulting to the trees. That permanent injury does result from growing

trees in grass, unless a space is kept clear round the stems, has been repeatedly proved, the continual competition between the roots of the grass and those of the trees for plant food and moisture in the soil is greatly to the disadvantage of the trees. Close cropping with all its risks of root injury is preferable to this, as can be seen in almost any of the market gardens around London, where fruits are grown in conjunction with vegetables or flowering plants.

Attempts have been made at times on the part of the land-owners or tenants to renovate some of the orchards, but it has generally been done in such an unsystematic or half-hearted manner that little good has resulted. A few old trees have been felled, the roots partly removed from the soil, and the young trees planted in the same places. This in itself is bad enough; but to complete the mischief, the trees have often been left unprotected until seriously barked by hares or cattle, or tied so securely to stakes that in a year or two the bark has been as effectually "ringed" as if that operation had been the object of the planter. When the results have been seen at the end of five or ten years, it has been rightly assumed that money and labour had been thrown away in such "renewals," and so the neglect has gone on again unchecked.

It is a serious matter, for it represents in the five counties alone something like 50,000 acres of good land worth an average rent of at least £1 per acre if well cultivated, and capable of being made to yield at the lowest estimate a total profit of a quarter of a million sterling to the occupiers, which under present conditions is little better than waste land. Nothing but a thorough system of renovation will ever effect any permanent good, and this will necessitate a considerable expense. To restore the majority of existing trees to healthy fruitful condition is almost impossible; the simplest and most satisfactory way would be to destroy them and provide for new plantations. In some cases, the present orchards are in very unsuitable situations, and new sites are desirable; but apart from that, it is preferable in every way where practicable to select fresh ground. If this is not possible, the plan I practise and recommend, where a proportion of the trees afford some fruit, and it not wished to sacrifice the whole at once, is to grub up one half at a time, clear the ground thoroughly of roots, give a heavy dressing of manure, dig or plough it in, and crop with vegetables for a year, then plant with standard and dwarf Apple-trees, and at the end of five years serve the other half in the same way. But in an ordinary way, if the plan is adopted of including dwarf trees on the Paradise with the standards, the whole of a worthless orchard can be treated in this manner at once, as the dwarf trees in a short time will give the supplies needed for present use.

The great question here comes, who is to bear the expense of the work? and this has been the great obstacle to improvement, and is likely to continue so, unless some understanding is effected between landlord and tenant. Where land has depreciated so much in value, and income proportionately decreased, it is scarcely reasonable to expect the owner to bear it all. On the other hand, the tenants regard it as an improvement to the property, in the advantages of which they may have only a temporary share. Perhaps the best way is for the landlord to take the initiative, and endeavour to make an agreement that shall be equally fair

and satisfactory to both sides. This has been done in the following ways, and either of the first two might well be extended: 1st, the landlord finding all the trees, and the tenant undertaking the labour of land-preparation, planting, and subsequent attention; 2nd, the tenant providing both trees and labour, but with an agreement that at the termination of his tenancy he shall receive compensation based on valuation from the incoming tenant or landlord; and 3rd, the tenant supplying trees and labour, but the former remaining his own property, to be disposed of as he may determine, but the land-owner not to be liable for compensation. The last is the least satisfactory, and has in some cases resulted in very harsh proceedings, for if a difference should arise between the landlord and tenant, the latter, unless he holds a lease, may be compelled to quit without realising any return for his labour and expense.

On the other hand, a careless tenant may allow his plantation to become a disgrace and danger to neighbouring orchards. In the other cases the landlord has some control over the cultivation, as it is part of the contract that the trees shall be properly attended to.

Thoughtful men who are interested in horticultural or agricultural questions of the day cannot but recognise that with the enormous demand for Apples there is ample room for increasing our own supplies—but these must consist of good fruit only; and wherever planting is undertaken, proved varieties only should be selected. The poor and damaged fruits being constantly put on the markets from neglected orchards bring down the prices, injure the trade, and convey very erroneous ideas of the returns to be realised from good fruit. *A Planter.*

NEW OR NOTEWORTHY PLANTS.

CYPRIPEDIUM CRAWSHAWÆ, n. sp.

SOME time ago, Messrs. J. Charlesworth & Co., of Heaton, Bradford, received from the Shan States a few plants of a quite new *Cypripedium*, which after the manner peculiar to many good things, did not readily bear travel. The plant which I have seen somewhat resembles *C. Parishii* in growth, but the leaf and size of the plant are more those of *C. Charlesworthii*. The leaves are, however, much more fleshy than those of that species, and bright green above, and entirely greyish-green beneath, the plant in no part exhibiting the purple markings usually seen on *C. Charlesworthii*. The collector's letter and a fine dried flower have now been forwarded. The collector says: "It is an entirely new *Cypripedium*. The flower-stalk is pale green and hairy; the flower is shaped like *Cypripedium Charlesworthii*, but it is larger, and the purple markings are entirely absent. In this the upper sepal is pure white, with a pale greenish blotch at the base, and a very slight tinge of the same colour at the tip. The petals, lip, and lower sepal are entirely of a pale greenish-yellow colour—my natives describe this as 'wa-pyan-byan'—a soft yellow. The whole flower is very glossy, and I consider it a much finer thing than *C. Charlesworthii*." The dried flower sent seems to bear out the collector's statement exactly. It may roughly be described as resembling *C. insignis* Sander in colour, but with more of the form of *C. Charlesworthii*. In size, however, it is superior to both. Mr. Charlesworth wishes it to be dedicated to his sister. *James O'Brien.*

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM INSLEAYI.

This plant greatly resembles *O. grande* in its pseudo-bulbs and foliage, the leaves being longer. The scape rises from the base of the leaves, and is

erect. A plant now in flower, at the Botanic Garden, Edinburgh, is carrying fourteen flowers, the sepals and petals being pale yellow in colour, with chestnut-brown blotches and markings the lip of a bright yellow, with reddish spots, while the column bears the distinguishing pair of horns of reddish-chocolate colour. It enjoys a position at the cool end of the Cattleya-house, and, flowering late in the season, is decidedly attractive. Several varieties of this species are in cultivation distinct from the type in their broader sepals and petals, or in their colour, the best known of which is perhaps *O. Insleayi splendens*. It is a native of Mexico, and was first introduced by Mr. Barker in 1839. *R. L. H.*

LELIA ALBIDA.

This pretty winter-flowering Orchid seems to have been flowering with exceptional beauty this season, if we may judge by the fine examples sent by various correspondents. From Joseph Broome, Esq., of Llandudno, comes a grand inflorescence, the flowers of which were unusually large, the sepals and petals cream-white, the apex of the lip light rose, central keels orange colour. From Walter C. Walker, Esq., Winchmore Hill, the fine *L. a. var. Stobartiana*, with the sepals and petals tipped with rose-purple; and *L. a. var. Walkeri*, a still finer flower in the same way. Another fine form, with rose-tinted sepals and petals, is sent by Mr. M. J. Watts of Clifton. *L. albida* is a very floriferous plant, and with proper management it may be grown in an ordinary greenhouse or conservatory.

THE ROSARY.

CLOTH OF GOLD ROSE.

"WILD ROSE" did well, in a recent issue, to call attention to this hitherto unexplained mystery once more. Before the advent of Rose Maréchal Niel, Cloth of Gold was comparatively common. I made many pilgrimages to see notable specimens in East Anglia, huge specimens, many of them covering gable-ends and sides of mansions, and other bare spaces. The variety was also met with at times in the open, as large bushes. Occasionally, too, it was allowed to climb up the stems of trees, or to form tangled thickets in warm nooks in woods. But whether as cause and effect, or by a mere coincidence, scarcely had the Maréchal Niel made his *début* in our gardens, than the planting of Cloth of Gold became less frequent, and now this Rose seems to be in danger of extinction. Certain it is that the climate of this country is unchanged, whilst all this curious and mysterious change was taking place, and our admiration for golden Roses has not become less ardent, but the one has paled before the rising popularity of the other. And the probability is, that where the Cloth of Gold grew and bloomed in years long ago it would do equally well to-day.

The old veteran Cloth of Gold Roses perished often through reckless slaughter, as pointed out by "Wild Rose," or through inadvertent cutting-back, severe pruning, or frost injury. Possibly your correspondent was in error in describing a Cloth of Gold Rose with a stem 15 inches in diameter. [Circumference was intended. Ed.] But a point should be made of the size and age of the Cloth of Gold or other golden or other Rose, as showing their capabilities of withstanding severe weather for many years. It is largely true that the bigger, the older a Rose-tree, and the harder, and also the more floriferous. Hence, in many cases, no sooner was the veteran Cloth of Gold cut down, by design or accident, than then its glory departed, either by slow degrees or suddenly. The concentration of vital force into the few new growths sent the Rose shoots off into fishing-rod lengths, sappy, and full of pith, and these ripening imperfectly would easily be injured by frost.

The stupid practice of cutting back old Tea or Noisette Roses almost to the ground-line is responsible for the loss of many a venerable plant; and even when that does not immediately follow, the plants are shorn of their beauty. On the heels of such a practice follows a struggle for life, rather than a revival of health; and the younger and smaller shoots being more tender than the ancient stems that

were cut away, hence a general decline in vigour sets in. This useless destruction of the aged Roses left the more tender parts of the plants several feet nearer to the ground, thus probably reducing them to more degrees of cold than prevails 10 to 20 feet higher. Hence, after severe pruning, natural or artificial, it takes some of the tenderer Roses years to regain their normal degree of hardiness. This fact is evident by the losses among Maréchal Niel as well as Cloth of Gold and other Roses. The effect, too, of altitude on the hardiness of Roses has not received the attention it deserves, for thousands of plants of Maréchal Niel have been killed to the ground line; while tall standards, and those worked high on Dog-roses, The Glory, Banksian, or climbing Roses on high walls or up trees, have escaped unhurt. *D. T. F.*

SEDUM SEMPERVIVUM.

THIS new introduction from Asia Minor, found by Mr. Siehe of Mersina, is a pretty *Sempervivum*-like *Sedum* possessing cochineal red flowers, which are produced in great abundance, see fig. 7, p. 19, which shows the plant of its natural size. It is a plant well adapted for carpet-bedding, and everyone who has seen it is surprised at the beauty of the plant. *U. Dammer.* [This can hardly be called new. It is described at length by the Editor in our volume for December 14, 1878, p. 750.]

NOVELTIES OF 1897.

(Continued from p. 2.)

MESSRS. F. SANDER & Co., St. Albans, out of their importations have flowered *Eriopsis Helenæ*, a pretty species with yellow and purple flowers; *Luddemannia Sanderiana*, a very distinct novelty; *Maxillaria elegantula*, yellow and purple; *M. dichroma*; the singular looking *Lycaste Mooreana*, and the fine *L. Skinneri pulcherrima*, and *L. S. rubella*; also *Leptotes nana*, the singular white *Dendrobium Gratrixianum*, and the floriferous *D. Baucroftianum*, said by some to be a form of *D. speciosum*, but quite a slender plant. Of fine varieties of showy species, Messrs. Sander flowered *Cattleya Mendeli fimbriata*, *C. Schroderi* "Queen Empress," *C. Mossiæ* "Empress of India," and *C. M. rubens*. Of their hybrids, the best are *Cattleya × Dominiana* "Empress," and *L.-C. × "Our Queen,"* shown at the Royal Horticultural Society on June 15; and among their introductions to the *Cypripediums* are *C. × Mrs. D. Solomon* (*Lathamianum aureum × Spicerianum*); *C. × Mrs. E. Uihlein* (*villosum aureum × Lecanum giganteum*); *C. × concolorillosum*, *C. × Oakes Ames* (*Rothschildianum × ciliolare*), *C. × Clement Moore* (*Dauthieri × Lecanum*), *C. × Rodolfiana* (*Harrisianum × insigne Sanderi*), and a number of others. Also in Messrs. Sander's list for the year are *Lælio-Cattleya × "Fire Queen,"* *Odontoglossum grande var. Pittianum*, *Phaio-Calanthe × Brandtæ*, *Sobralia Holfordi*, *Lælio-Cattleya × amœna*, *Gongora Sanderiana*, *Zygopetalum venustum*, *Warrea grandiflora*, &c.

Messrs. Hugh Low & Co., Clapton, have been specially fortunate in flowering good novelties during the past year, the best of theirs being *Odontoglossum × excellens Lowii*, and *O. crispum* "Queen Victoria," two grand varieties. *Cattleya Mossiæ*, "In Memoriam Richard Curnow," perhaps the largest and best *C. Mossiæ* of the year; *C. Hardyana*, Low's variety, very richly coloured; *Cypripedium × Mrs. E. V. Low*, a chaste novelty; *Lælia pumila*, Low's variety, lavender-blue tinted; and *Calanthe Veitchii alba*.

Messrs. W. L. Lewis & Co., Southgate, have made a specially good mark this year through the number of grand varieties which have flowered out of their superb strain of

Lælia pumila, stands of which, with distinguished fine varieties, having been shown by them on several occasions. The best large coloured varieties are their *L. pumila magnifica* and the *L. p. superba*, shown by R. W. Rickards, Esq., of Usk, at the last meeting of the Royal Horticultural Society; the most remarkable was the blue-tinted *L. p. Gatton Park* variety, for which Jeremiah Colman, Esq., secured a First-class Certificate; and some pretty white, or nearly white, forms

being of a yellow instead of a greenish hue; and *Cattleya labiata* Emperor, a gigantic and finely-coloured variety. Of his hybrids *Lælio-Cattleya* × *Cypheri* (*purpurata* × *Forbesii*) is his prettiest novelty of the year. Mr. Jas. Douglas, of Great Bookham, at the meeting of the Royal Horticultural Society, December 14, showed the pale yellow *Lælia* × *Briseis* (*harpophylla* × *purpurata*).

Mr. Thos. Rochford, of Turnford Hall Nurseries, from whose great stores of Orchids grown

pumila brevis, shown by Sir Frederick Wigan; *Cypripedium* × *Lilian* Greenwood, and the *C. × bellatulo-vexillarium* of Mrs. Briggs-Bury; *C. × Lecanum magnificum* of Mr. G. Shorland Ball; *C. × callo-Rothschildianum*, of J. Gurney Fowler, Esq.; *Lælia pumila*, Gatton Park variety, of Jeremiah Colman, Esq.; and *L. p. superba*, of R. W. Richards, Esq.; *Lælia* × *Hippolyta*, *Dulcote* var., and *Zygopetalum Jorisianum*, of Walter Cobb, Esq.; *Dendrobium nobile*, Hutchinson's var., of General Hutchinson; *Odontoglossum Pescatorei*, *Sligachan* var., of J. Wilson Potter, Esq.; *O. × excellens* "Richard Ashworth," *O. × Andersonianum*, *Danchurst* var.; the singular natural hybrid *Vanda* × *Moorei*, of Mr. Moore, of Bradford; and, among other fine varieties, the *Odontoglossum crispum aureo-marginatum*, of Messrs. B. S. Williams & Son.

Continental Novelties have been fairly represented by fine exhibits of Messrs. Linden of Brussels at the Royal Horticultural Society. Of these the phenomenal *Odontoglossum*s, for which the firm is noted, gave the wonderful *O. crispum Luciani*, said to have been sold for 12,000 francs (£480), the highest price ever fetched by an *Odontoglossum*; *O. crispum Kegeljani*, and *O. c. Ami Charles*, both very fine; and *O. Pescatorei Imperati*, richly spotted with purple. Their grand strain of *Cattleya Trianaei* has yielded many fine novelties, of which the two finest are *C. T. Imperator* and *C. T. eximia*, though those named *Lindeniae*, *illustris*, *dilecta*, *princeps*, and *Miss Linden*, are likewise grand flowers. Their *Vanda* × *amœna* is a pretty natural hybrid of *V. coerulea*; *Cattleya Mossiae*, *Queen Empress*, and *C. M. Moortebeekiensis*, two splendid things; and *Cypripedium* × *Lebaudy-anum*, and *C. × Beekmanii*, two fine acquisitions.

M. Chas. Maron, Orchid-grower to M. Fournier of Marseilles, a great raiser of hybrids, announces among others, *Cattleya* × *Astrea* (*Skinneri* × *Loddigesii*), *C. × Fernand Denis* (*Acklandiae* × *Warszewiczii*), *C. × Pentillati* (*Leopoldi* × *superba*), *C. × Bréauteana* (*Loddigesii* × *superba*), *C. × Gaudi* (*Leopoldi* × *Loddigesii*), *C. × dubia*, of doubtful parentage; and several new forms of *Lælio-Cattleya* × *Canhamiana* and *L.-C. × callistoglossa*, obtained by selection of the parents used.

M. A. Peeters, St. Gilles, Brussels, flowered many good things, among the best being the *Odontoglossum crispum Peetersii*, a handsomely blotched variety; *O. c. Mrs. Peeters*, a charming novelty, with distinct red-brown blotches and pretty flush of rose; *Miltonia vexillaria Hyeana*, and *M. v. virginialis*, all shown at the last Temple Show.

New or rare Orchids illustrated in the *Gardeners' Chronicle* in 1897 are:—

Bulbophyllum Ericsoni, January 23, p. 61.

Bulbophyllum Medusæ, January 9, p. 25.

Cattleya × *Empress Frederick* var. *Leonata*, December 18, p. 429.

Cattleya Mossiæ *Queen-Empress*, June 12, p. 379.

Cattleya Mossiæ *Rappartiana*, July 10, Supplement.

Cattleya Schofieldiana gigantea, October 9, Supplement.

Cattleya Warszewiczii "Mrs. E. Ashworth," September 4, p. 163.

Coryanthes Fieldingi, July 17, pp. 31, 33, 39.

Cypripedium × *Chapmanni* *magnificum*, June 5, p. 365.

Cypripedium Lawrenceanum *Hycaum* (Cookson's variety), January 16, p. 37.

Dendrobium × *Kenneth*, February 27, p. 135.

Dendrobium Victoria Regina, August 21, p. 121.

Epi-cattleya × *Matutina*, April 10, p. 233.

Epi-lælia × *radio-purpurata*, August 7, p. 83.



FIG. 7.—SEDUM SEMPERVIVUM: FLOWERS REDDISH-CRIMSON. (SEE P. 18.)

have also appeared. Messrs. Lewis & Co. are credited with the delicately-tinted *Cattleya Mendeli* *Madonna*, and the pure white petalled *C. labiata* *Lewisii*. Mr. James Cypher, of Cheltenham, famed for the high culture of his plants, received recognition at the Manchester Great Show for *Lælia purpurata* *Thompsoni*, *L. p. Schofieldiana*, and *Cattleya Mendeli* *grandiflora*, all fine examples of favourite species; and at the November Show for *Cypripedium insigne*, var. *Dorothy*, a fine yellow form; *C. × Lecanum aureum*, var. *giganteum*, differing only from the original *giganteum* in

for market purposes many fine things may be expected, flowered the charming *Vanda coerulea* *Rochfordiana*, a pure white variety, with pale pink labellum; the first wholly white *Dendrobium nobile*, *D. n. virginale*, and some good white and blush-white varieties of *Lælia pumila*.

Of other good things certificated and shown, mention must be made of *Lælia* × *Lucy Ingram* (*purpurata* × *Perrini*), and *Lælio-Cattleya* × *Venus* (*L.-C. × elegans* × *C. Percivaliana*), raised by Mr. C. L. N. Ingram; the fine *Lælio-Cattleya* × *Lady Wigan*, of Messrs. J. Charlesworth & Co.; *Tricho-*

- Grammatophyllum speciosum* August 28, p. 145.
 147.
Lælia pumila alba "E. Ashworth," January 2, p. 11.
Lælia pumila, Gatten Park variety, October 16, p. 262.
Lælio-Cattleya × *Decia alba*, February 20, p. 121.
Lælio-Cattleya × *Clive*, December 18, p. 427.
Lælio-Cattleya × *Rosalind*, January 2, p. 3.
Lycaste Denningiana, October 2, p. 231.
Maxillaria elegantula, December 11, p. 420.
Odontoglossum crispum "Queen Victoria," June 12, p. 379.
Odontoglossum crispum Lindeni, April 24, p. 269.
Odontoglossum crispum Luciani, April 24, p. 268.
Treveria Chloris, Lehm., May 29, Supplement.
Vanda × *amcena*, October 2, p. 239.
Vanda × *Miss Joaquim*, June 26, p. 425.
 (To be continued.)

MARKET GARDENING.

WHERE AND HOW TO START A MARKET-GARDEN.

THE market-garden industry has attained to enormous dimensions and importance during the last ten or twelve years. This is not to be wondered at, seeing that the cultural skill, energy, and business of the market-gardener are exclusively directed to the task of growing produce in sufficient quantity to meet the growing demand of the ever-increasing millions living in our cities and towns for wholesome food in the way of choice and ordinary vegetables, both in and out of season. Indeed, so largely has the demand been annually increasing in this direction, that the area of land under vegetables, such as Asparagus, French and Runner Beans, Beetroot, Brussels Sprouts, Cabbages, Celery, Cauliflowers, Cucumbers and Tomatos, Lettuces, Peas, Rhubarb, Seakale, Spinach, and other things, including fruit and popular flowers, exceeds 100,000 acres. As a large percentage of the readers of the *Gardeners' Chronicle* consist of the market-garden fraternity, who, like horticulturists generally, refer to its pages weekly for practical and helpful information, and seeing that the ranks of market-gardeners are recruited from the rank and file of gardeners, it will not be out of place here to insert a few general remarks for the benefit of those who may be about to commence business as market-gardeners.

The following are points that should be carefully considered before the field of one's operations is fixed upon, and a considerable sum of money risked—perhaps a life's savings in the venture:—1, proximity of the spot to a railway-station, and towns in which the productions raised can be sold; 2, texture, depth, and fertility of soil; 3, water-supply; 4, situation and aspect of the land as regards exposure to the south and west, and protection from the north and east winds, and evenness of surface of such portions upon which it may be the gardener's intention to erect span-roofed glasshouses, and which should run north and south. Should the ground rise two or three feet in 100 or 150 feet in this direction, it does not matter in the least so long as it is level, or nearly so in the opposite direction—otherwise, heavy expenses will have to be incurred in removing and levelling soil. Particular attention for such site should be paid to the underground water-level; inattention to this point may result in the submergence of the floors, stokeholes, &c., at any time. (6) The adaptability of those about to embark in the business of a market-gardener for the work; and (7) bearing in mind in selecting a favourable spot in which to commence, that the nearer the scene of the market-gardener's operations is to the outer circle of the smoke-laden atmosphere of large and populous towns the less money will be swallowed up by the carriage of goods. In support of the assertion that market gardening is a paying industry, we need only refer to the fact that land in the vicinity of large and populous towns is always devoted to raising crops of vegetables, thus proving conclusively that the land is considered much too valuable by the owners to be

cropped with cereals or roots. Moreover, there is abundance of evidence of the truth of the old law "Small beginnings often grow into big endings," as many of the larger market-gardeners of the present day began in a small way with, in some cases, only their own pair of hands to do the work, and by well-applied skill, industry, and perseverance, and sound judgment in considering the requirements of their local public, and the public demands generally, have gradually, and, in some cases rapidly, succeeded in building up and extending their respective businesses to large dimensions—a circumstance which goes to show what may be accomplished with a moderate amount of capital, and well-directed skill, industry, and energy.

Those who intend entering upon the business of a market-gardener should select land close to the outskirts of a large business town in which there are but few market-gardens established. In the matter of glasshouses, low, narrow, span-roofed ones with sunken paths are to be preferred, and these should be efficiently heated with hot-water pipes for forcing Asparagus, Seakale, Chicory, French Beans, Rhubarb, Radishes, Cucumbers, Tomatos, as well as foliage and flowering plants, including Hyacinths, Narcissus, and other bulbous plants. These, when well grown and sent to market at the right time, realise remunerative prices. In connection with the sum total thus turned over, the cost of production, such as the cost of coal and coke delivered, and the securing of a good supply of water, must not be overlooked when selecting land.

Before proceeding to erect glasshouses, their number and character, and the purposes they will serve, must be well thought over, and a plan of the ground and the intended glasshouses should be prepared, this plan being adhered to, even should all the houses not be erected at one time. If two or more houses be required for early, mid-season, or late Grapes, for Melons, Cucumbers, Peaches, Tomatos, or any other plant requiring the same temperature, the only walls that need be built, whether five or 100, are the two outside ones, in addition to the end walls. Brick piers, of 9 inches square, built on concrete footings, at about 7 feet apart, for supporting planks of pitch pine, on which the wall or gutter-plates for supporting the rafters are nailed, will afford complete stability to the block of houses thus built. The wood employed in the construction of such glasshouses should consist of best well-seasoned yellow deal, excepting the valley-plates, which, as already stated, should be pitch pine, this being 12 inches by 1½ inch, and tarred on both sides. The other items of wood necessary to the erection of houses of the description mentioned above, are as follows:—Wall and end-plates, 3 inches by 4 inches; end-rafters, 3 inches by 4 inches; bars or intermediate rafters, 1½ inch by 3 inches; end and division-bars, 1½ inch by 3 inches; ridge, 1½ inch by 6 inches; capping, 1 inch by 4 inches; drip, 1 inch by 3 inches; door-frames 3 inches by 4 inches, with oaken cills of the same size; doors, 6 feet 6 inches by 2 feet 8 inches, the doors being either all wood, or they may be made of one half glass; and if purlines are deemed necessary, they should be 2½ inches by 3½ inches, bevelled, the vertical supports being 2 inches by 3 inches. If the brickwork (walls) are from 2½ feet to 3 feet high from the ground-line of house, and the latter is 12 feet wide, 8-foot rafters will afford ample space and angle for Cucumbers and Melons. For Grapes, Peaches, Tomatos, and Figs, houses 25 feet wide, with 14-foot or 15-foot rafters, will be suitable in every way. Purlines should be used in this class of house, and iron side-ties should be employed in all the houses. These, consisting of ½ inch by 1 inch bar iron, and about 4 feet long between the two cranks, should be secured to the wall-plate with coach-bolts at intervals of about 15 feet, the bottom-end being let into the border in holes sufficiently deep to take a good-sized bucket of concrete, consisting of two of finely-broken bricks to one of cement in each. The necessary number of roof ventilators should be worked throughout with Harris's or similar gear; the woodwork should receive two coats of paint before being fixed, and

one more afterwards. The glazing may be done with glass 21 oz. to the foot, this being bedded in the best white-lead putty, and sprigged on the top, putting four brass spriggs to each square of glass. Of course, the several glass structures should be efficiently heated with hot-water, using 4-inch pipes for the purpose. Readers who may contemplate going in at once for market-gardening on the lines I have set forth, should lose no time in placing their orders in the hands of a builder having a good reputation for erecting glasshouses of the kind indicated, who would probably be in a position to erect from half-a-dozen to fifty houses of the dimensions given above, and 200 feet long each, within a month or six weeks from the time of receiving the order; the hot-water engineers following closely on the heels of the painters and glaziers. H. W. Ward, Rayleigh.

MARKET CHRYSANTHEMUMS.

The season just past has been far from a happy one for Chrysanthemum growers. Although the quality of bloom has perhaps never been higher, prices have never been so low, and that the mild weather has been largely responsible for this is amply evidenced by the fact that salesmen in even some of the most northern centres have declined to receive supplies on the ground that such a quantity of "outdoor stuff" was coming in. Indeed, the mere fact that whilst but indifferent blooms last year fetched 4s. 6d. to 6s. per dozen bunches, specimen blooms have this autumn frequently realised only one half those prices, is sufficient to prove that it is not growers who have been wholly at fault.

Nevertheless, there are lessons to be learned from this season's disappointments, which Chrysanthemum growers should take seriously to heart before preparing for their next campaign, and of these perhaps the most important is that, if the mild season has been the main factor in recent disastrous results, the extensive—and apparently still extending—production of early varieties has had much to do with bad prices. Those growers—and, unfortunately, they are in the majority—who pinned their faith on such sorts as *Selborne* and *Source d'Or*, probably, as offering a crop which could be got in without the use of fire-heat, have been the greatest sufferers from the general glut in the markets. As a proof of this, one has only to remember that whilst fine *Selbornes* were sold with difficulty at a few pence per dozen blooms, and smaller ones were practically unsaleable at any price, late November and December whites of not nearly such good quality, in some instances sold readily at treble the price just indicated. The "average grower" of Chrysanthemums, as of everything else for market, is he who clings to old systems, and it cannot be expected that he will alter his methods entirely even after the sharp teaching of this season. Still, it is obvious that it is the up-to-date grower who spreads his supplies over all the period available who has reaped the most satisfactory reward for his labours. It may be argued that the more growers produced later blooms, the lower the price would be; but what we want to guard against is a universal output of a thing at a given time, and a glut later in the season can never be so keenly felt as it is in October, when the weather is usually fairly mild, because prices could not, at any rate, be influenced by any heavy arrivals of outdoor blooms, other blooms as well as those of Chrysanthemums, be it remembered, helping the competition when the early-flowering varieties are placed on the market.

Again, if the average grower of the Chrysanthemum suffers, and makes others suffer, by his extravagant output of early varieties, he sins also in the monotony of the varieties chosen. Going the round of the florists' shops in October, what do we find in every one? Nothing whatever but one dull routine of *Selborne* and *Source d'Or*, with here and there perhaps *La Triomphante*. That every grower turns out the same stuff, and that every shop-keeper but repeats his neighbour's display, is astonishing in itself; but it is the more amazing when proofs are not wanting that the public is heartily sick of the system. It is part of this class of growers' method to hold his hand after his heavy output of these two varieties for a

necessarily smaller output of "Christmas stuff;" but here again we find the same monotony, only now, instead of the sameness of white and bronze, it is the sameness of white and yellow—Lady Lawrence, L. Canning, and W. H. Lincoln.

It is generally admitted that Selborne is the best white at its own particular season, and Canning is equally indispensable, not because it is very good, but because there is nothing to replace it at all. The industry of raisers of new kinds is so devoted to the introduction of those which will bring them fame at the November shows, that the needs of the grower for the Christmas and New Year's markets have been practically overlooked, and there still awaits plenty of money for the man who can introduce a really reliable late white—one more certain than Princess Victoria, which often comes a washy pink or dirty yellow, of better build than Canning, and dwarfer than Lady Lawrence. But for variety in coloured sorts, either early or late, we are not so handicapped.

financial result to that from growing Source d'Or and Lincoln.

The newer varieties of any market stuff are often objected to on the ground that their initial cost is too great. The grower reflects that he has plenty of his own cuttings of Selborne, Canning, Source d'Or, and Lincoln; that the blooms "fetch something," and he asks why should he go to the expense of buying fresh stock? It is a short-sighted policy. Take Source d'Or, for instance: to realise a really good price, a plant of this variety could not carry more than six or eight blooms; it requires a lot of feeding even to obtain these of requisite quality, and throughout its season of growth it wants continual tying. Now, compare this with one of the newer sorts just named. This will perfect twelve to eighteen blooms, each of which will sell for much more than the best bloom of Source d'Or; it requires next to no feeding, and a couple of ties keep its stiff, dwarf stems up until it is ready for housing. It is

of large lanceolate bright-green fronds, which are sometimes 4 feet or more long, and a foot wide. According to J. Smith (*Ferns, British and Foreign*), it sometimes grows even larger than this, a correspondent in Penang having told him of two fine specimens, each with from forty to fifty perfect leaves, the average length of which was 6 feet, and from 12 to 14 inches wide, and looking in the distance not unlike American Aloes.

The species is widely distributed in the Old World tropics, and several varieties of it are known, all, however, with entire fronds. A new variety, remarkable for the division of the upper part of the fronds into numerous lobes, some of them a foot long and lobed again, has lately been added to the Kew collection through the kindness of Mr. F. M. Bailey, F.L.S., Colonial Botanist, Brisbane, who communicated the following information, together with the photograph which is here reproduced (fig. 8), to the Director at Kew:—"While at the north



FIG. 8.—CRESTED BIRD'S-NEST FERN; ASPLENIUM NIDUS VAR. MULTILOBATUM.

Here among the newer sorts we shall find as many shades and shapes, even of the favourite bronze and yellow, as will satisfy the most ardent seeker for change. No grower could be expected to grow new sorts because they are new; there are plenty of sorts which wise men have "let others try," and of these one can easily name a few which, in American parlance, have "come to stay." For example, there is a magnificent variety of M. Calvat's recent introduction which unfortunately bears the name of an old unsatisfactory sort, Boule d'Or. This is catalogued as "rather early;" but, as a matter of fact, its grand incurving blooms can be had good at Christmas. They have been very fine this Christmas. This variety may be cited as what a really good market plant should be; it has good blooms, it resists mildew, and its strong stiff stems require little tying. Then there are La Mouchette, good till February; Le Rhone, Australian Gold, Modestum, New Phoebe, Sunstone, Lady Hanham, and many others. But two or three of these sorts only would soon show a different

unlikely that Chrysanthemum blooms, however well finished, will ever fetch the high prices they used to do: therefore, it behoves growers to produce them at the lowest possible expense, and a way is certainly open to do this by studiously selecting the newer sorts, which, naturally large-flowered, and dwarf, and sturdy, quickly save twenty times any extra cost incurred in the purchase of fresh stock by the saving of labour in tying and feeding, not to mention the advantage of better blooms at the end of the grower's ten months' toil and anxiety. A. C. Jones, Thornhill, Bitterne, near Southampton.

CRESTED BIRD'S-NEST FERN (ASPLENIUM NIDUS VAR. MULTILOBATUM, F. M. Bailey).

TYPICAL A. nidus is a well-known Fern in gardens, large specimens of it being not uncommon. It forms a dense mass of moss-like roots, and ultimately a short, thick stem supporting a vase-like arrangement

recently, I found that Mr. C. J. Nugent, who has collected many plant specimens for me, had brought from the top of the Trinity Bay Range a very beautiful and remarkable specimen of Asplenium nidus. This I arranged with him for, and have much pleasure in forwarding it to you in a Wardian-case. . . . I have an idea that spores taken from the multilobed fronds might have a tendency to form similar plants to the parent, for the spores of Ferns, being asexual, in some respects approach to gemmæ or bulbils, and they may reproduce plants similar to those from which they were taken. I will call this variety multilobatum."

Spores have already been sown at Kew; and as spores of the type vegetate readily, a batch of young plants having recently been raised, we shall probably soon have a big stock of the new variety, which is in many ways a most remarkable Fern.

A. nidus is one of the few Ferns that have been figured in the *Botanical Magazine* (see t. 3101, 1831). It is there described as a parasite on the trunks of

trees. The mode of growth of this plant, its fronds forming a circle, hollow in the middle, would alone justify the specific name given by Linnæus; but it seems to have arisen from another circumstance. "The root," he says, "fixes itself upon the lofty trees, whence the leaves rise erect, and arrange themselves in a circle, like an umbel, in the hollow centre of which the birds are frequently accustomed to build their nests." Mr. Hart, Superintendent of the Botanical Department, Trinidad, has lately sent to Kew a photograph of the variety known as *musæfolium*, in which the plant is shown to be about 9 feet in diameter, and to have about fifty fronds, each 6 feet by 1 foot. Mr. Hart says it has stood in the same position in the same tub for over eleven years. *W. W.*

PLANT NOTES.

GARDENIA DEVONIANA.

This species is remarkable on account of its long trumpet-shaped flowers, which appearing during the winter months, make the plant valuable for the decoration of our stoves. It has a shrubby, compact habit, and grows to a considerable size, and is evergreen. The branching is dichotomous, while the dark green leaves are clustered near the apex of the shoots. In manner of flowering the plant resembles *Randia maculata* (Gardenia Stanleyana), figured from this garden in *Gardeners' Chronicle* of October 3, 1896. Like that one, the flowers are terminal and solitary, but they change from white to a creamy colour a short time after expanding. They are 9 or more inches long, and if the plant is well flowered it certainly presents an uncommon appearance. Being a native of Sierra Leone, a tropical temperature is required. It is figured in the *Bot. Reg.*, vol. xxxii., t. 63, and is named in compliment to the Duke of Devonshire, being collected by Mr. Whitfield, the collector of so many fine flowering plants of that district. *R. L. H., Royal Botanic Gardens, Edinburgh.*

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorking.

Platyclinis (*Dendrochilum*) *glumacea*, &c.—Any plants which are showing young growths may be removed to the coolest part of the East Indian-house, and in order to produce strong flowering breaks, the plants should be raised to the roof, in a very light position short of actual sunshine, and when the growths are grown to about two inches in height, they commence to emit roots, and this is the best time to repot it if repotting should be required; otherwise the plant should wait till the flowers fade. A compost consisting of good fibrous peat and sphagnum moss, intermixed with a moderate quantity of clean crocks suits the plant. Till growth is completed the plant should be afforded plenty of moisture at the root; and on bright days the under sides of the leaves should be syringed in order to keep red spider in check. *P. filiformis* and *P. uncata*, although quite distinct, require nearly the same kind of treatment; and all three species deserve to be more commonly grown. As table plants, and especially where tall vases are used, their pendulous, slender, racemes make them pretty objects. *P. uncata*, now flowering abundantly from its half-grown breaks, will require abundance of water. It thrives luxuriantly if suspended in a light part of the intermediate-house the year round; and *P. filiformis* flourishes under the same conditions. This plant has just completed its growth, and will consequently require less water at the root; but although it is at rest the compost should be kept slightly moist—and in order to avoid saturating the materials, my practice is to take the plant down two or three times a week and, according to the state of the weather, give it a thorough syringing overhead, and by this means keep the pseudo-bulbs plump, and the leaves fresh-coloured. *P. Cobbiana* is another pretty species that has just gone out of bloom, and will require to be well supplied with water till growth is fully made up, after which the treatment afforded to *P. filiformis* will suit it.

Sobralia macrantha, *S. Warscewiczii*, *S. virginalis*, *S. albo-violacea*, *S. leucoxantha*, and some others

are making growth fast, and in order to afford the new stems space, those which have flowered should be cut off at the ground-level, and the growths staked out clear of each other. All species of *Sobralia* succeed under intermediate-house conditions the whole year. The plants will not require nearly so much water at the root now as during the heat of summer, too much water at this time of year being likely to cause the leaves to become spotted, and their points to turn brown.

The Cattleya-house.—Plants of *Cattleya labiata* Warneri, with growths now starting, should be raised to an airy part of the roof at the warmer end of the East Indian-house, keeping them there till growth is finished, then returning them to the *Cattleya-house* to flower. While growth is being made, the plants should be carefully afforded water, the compost being kept moist only. The proper time to repot the plant is as soon as the flowers fade.

Dendrobium Clio ×, *D. Burfordiense* ×, *D. Wardianum*, *D. micans* ×, *D. Juno* ×, *D. Wigane* ×, and *D. Wardiano-japonicum* already starting into growth should be afforded water at long intervals of time, and not subjected to a high temperature, or the breaks that are showing at the base of the pseudo-bulbs will grow too rapidly and prevent the flower-buds coming to perfection. These growths will remain almost stationary for a long time if the plants are kept in the resting-house. When the flower-buds begin to open, the plants should be removed to a light position in the *Cattleya-house*. *Dendrobiums* that do not generally start into growth when their flower-buds show, namely, *nobile*, *aureum*, *moniliforme*, *tortile*, *Ainsworthii* ×, *splendissimum* ×, *Dominianum* ×, *endocharis* ×, *Virgine* ×, *Leechianum*, &c., may be brought from their resting-house into a somewhat warmer one, the intermediate-house being a suitable one for a week or two, after which they should be put into the East Indian-house in a light part. These plants require at this season but little water at the root, just as much as will keep the pseudo-bulbs from shrivelling, and favour the slow advance of the buds. The species *D. Parishii*, *D. albo-sanguineum*, *D. crepidatum*, *D. cretaceum*, *D. transparens*, *D. Pierardi*, *D. primulinum*, &c. are still at rest, and should be kept rather dry till the flower-buds show, when some degree of moisture and more warmth are required. *Dendrobium Cambridgeanum* is now starting to grow, and should be removed to the cool-house, where it should remain till the growths show for flower, when the plant may be gradually inured to the East Indian-house conditions. Plenty of water should be afforded after the breaks have started to grow.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Shady places under Trees.—The sides of shady walks and the ground underneath large-headed trees, where most kinds of shrubs fail to do well, can be beautified by planting Ferns, Periwinkles, Primroses, bulbs of *Crocus*, *Snowdrop*, *Daffodil*, *Scilla*, *Winter Aconite* and *Chionodoxa*, increasing the area planted gradually year by year. Growing as the bulbs do at different periods of the spring, these often otherwise neglected and uninteresting portions of the garden, can at a very small expense, and with little trouble, be rendered very attractive, and once they are planted needing but little further attention.

Primrose roots gathered from the woods and downs, if planted on the edges of shrubberies, in any available nooks and dells, will help to brighten and enliven the garden in early spring.

Summer Bedding Requirements.—All arrangements as to the number of plants required to be raised from cuttings and seeds for summer bedding, should be forthwith decided upon. Where large quantities of *Alternantheras* are required in carpet beds, propagation should now be commenced. Let the cuttings be inserted in 48's, filled with sandy soil. Place these in a brisk bottom-heat in a hot-bed frame, or the propagating-house.

Cannas.—Seeds of those which are to be made use of in the beds should be sown without delay in pans or pots plunged to the rims in strong heat. The seed being very hard, germination will be helped if the seeds are soaked in luke-warm water for some hours before sowing them. Some of the plants will be some weeks longer than others in coming up, and the best way, or at least the safest, is to count the seeds sown in each pot or pan, and lift those which come up when ready for potting-off out of the seed-pan with the point of a label, taking care not to disturb

the ungerminated seeds, and retain the seed-pan in the hot-bed till the other seeds are germinated.

Hollyhock-seed if sown at this date will produce plants that will flower during the first summer. Let plenty of sand be used in the soil with which the seeds-pots are filled, and place these in a mild hot-bed or warm-house, potting off the seedlings as soon as they are large enough to handle into small pots. Afford water very carefully to the seed-pots, the seedlings being very liable to damp off. Continue to repot the plants as fast as they fill the soil with roots, decreasing the temperature as the spring advances, and hardening them off properly before planting them out. If the plants are in 48's or 32's when planting-out time arrives, the more satisfactorily will they flower. The end of April or the beginning of May form a suitable time for planting seedlings, the gardener being, however, guided by the sort of weather prevailing. The soil for the *Hollyhock* should be rich, and the stations deeply trenched.

Fibrous-rooted Begonias.—If these are required for bedding purposes, seed should be sown this month. The plants make very effective bedders, and some of the newer varieties have very dark-tinted ornamental foliage, which makes the plants useful as edgings to beds of variegated-leaved *Pelargoniums*.

Antirrhinums.—If seeds of the Tom Thumb varieties be now sown, the plants will be available for bedding-out this season. The yellow varieties of this section bids fair to supersede the *Calceolarias* as a summer bedder, it is entirely independent of the weather, and continues to flower till quite late in the autumn. The seed may be sown very thinly in pans, which may be placed on a shelf in a warm house till it has germinated, when cooler treatment must be adopted.

FRUITS UNDER GLASS.

By G. NORthAN, Gardener, Hatfield House, Herts.

Strawberries.—Certain varieties appear to force with better results in some places than others. For starting at this date, *Royal Sovereign* has been the best here for several years past. Strong plants with well ripened crowns if started now may be relied upon to produce good crops of fruit in April. A Strawberry-house is a great convenience, and the plants' requirements can be satisfied without consideration of other species. But *Strawberries* may be forced with success in other properly-ventilated houses if given light positions, near to the glass. A newly started *Peach-house* is a suitable one for them. Before placing the plants in warmth, remove the dead leaves, and examine, and make good the drainage in each case. The surface of the soil should be made firm also with a potting-stick, taking care to use it effectively near the sides of the pots, so as to make good any space there may be, through the soil having shrunk. As a preventative of mildew, it is well to dip each plant in water containing about half a pint of sulphur to 2 gallons of water. When commencing to force, the temperature at night should be about 50°, and by day with fire-heat 55°, with a rise of 10° by sun-heat. Every alternate day is usually frequent enough to examine them, and tepid water should be given to all those which are in only a slightly moist condition. Each 6-inch pot should have an inch water-space at the surface, and this should be filled each time water is given. The soil must not be allowed to become dry at any time. Syringe the plants once on fine days only, especially on the under-side of the leaves. When the weather is dull and the air in the house dry, merely damp the floor. Before the plants have made young leaves, choose a calm afternoon to fumigate them, to destroy green-fly. Ventilate during the forenoon in degree as the temperature rises, and in the afternoon reduce it also gradually. If any of the earlier plants have commenced to open their flowers, discontinue syringing, and keep a somewhat dry atmosphere until the fruits are set, allowing as much ventilation at the top of the house as the weather will permit, and 5° more heat during the day than advised above for later plants.

Cucumbers.—Strong plants raised from seed, or cuttings in the autumn, may now be planted. To provide bottom-heat, there should be a chamber furnished with hot-water pipes. Over this chamber place about 9 inches of well-prepared hot-bed manure, and over this small mounds of soil, about a yard apart, along the front of the house, sufficient in quantity to cover the roots when planted. This soil may consist of three parts turfy-loam, to one of old Mushroom-bed manure. Allow this to become warm, and then put in the plants, and secure each one of them to a

stick, one end of which should be inserted into the soil, and the other fastened to the trellis. After planting, afford a thorough soaking of water, and maintain a bottom-heat of from 80° to 85°. The temperature of the house should be 65° to 70° by night, and 75° by day, with fire-heat, allowing a rise of 10° by sun-heat. Cucumbers require much moisture at the roots, and in the atmosphere. Examine the soil twice a week, and if found to be approaching dryness, afford it a soaking of tepid water. Keep the surface of the soil damp by occasionally sprinkling it through the rose of a watering-can. Syringe the plants once on fine days, but more frequently as the season advances. When the plants have made growth, tie the leading stems loosely to the sticks, and pinch off the side-shoots until they reach the trellis. A sowing of Cucumber-seed may be made now. Sow the seeds in fine light loamy soil, eight seeds in a 5-inch pot, and cover with about quarter-inch of soil. After sowing, give them a gentle watering, plunge the pots in the bed between the Cucumber plants, place a piece of glass over each pot in case a mouse find its way into the pot. Remove the glass as soon as growth has commenced, and pot off when the second leaf can be seen.

Melons.—Seeds may now be sown for the first crop, and treated the same manner as that recommended for Cucumber seed.

Peach Houses.—Go over the blooms in the early house about noon each day with a camel-hair pencil, or rabbit's tail, to assist their setting, and for the same purpose the trees may be shaken slightly. Keep the atmosphere rather dry and buoyant, by having extra heat in the pipes in the daytime, with as much ventilation as the weather will permit. The temperature may be kept at 60° during the day, or 10° higher with sun-heat. From dusk it may gradually recede to 50° at daybreak. Damp the borders and paths once on fine days while the blooms are open.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

Forcing Potatoes.—The best results are obtained from hot-beds made up of stable-manure and tree-leaves, the latter forming the larger proportion; and while the material is undergoing preparation and fermentation, place a sufficient number of tubers of some early kidney in boxes or on the floor of a Cucumber-house, or some other warm-house, placing some soil of a light kind or leaf-mould among them, and being careful to place the end in which are the "eyes" uppermost. When the shoots have grown 1 in. in length, and they have been reduced to two, the tubers are ready for planting in the hot-bed. A hot-bed for forcing Potatoes should be erected 2½ to 3 feet in height, and 1 foot wider than the frames. When the frames are placed on it, a layer of light mould 4 inches thick should be put inside, and when this has got warmed throughout, plant the tubers 9 inches apart, proceeding in this manner till the frames are planted, and cover the tubers with light, dryish mould, nearly up to the lowest leaf on the sprouts. It is an economical practice to sow seed of some early kind of Radish between the rows, these roots being ready for use before the tops interfere with the Potatoes. Afford water when the soil indicates dryness; cover the frames at night with mats and litter, according to the state of the weather, removing all covering as soon as it is safe to do so, and afford air in small quantities in mild weather. The day temperature may be anything between 65° to 70°, and that of the night 55°.

Carrots.—A mild temperature only is wanted to force this useful and much-prized root, and the forcing may be done in pits or hot-beds, as made for Potatoes, the depth of materials being a little less. Let a layer of sandy loam 7 inches deep be put into the hot-beds, and when this has got warmed, sow the seeds thereon, after levelling and firming it. Let the seeds be lightly covered to the depth of a quarter of an inch with light soil pressed firmly. Keep the frames close till the seeds are up, when air should be admitted freely in mild weather, and maintain the warmth of the bed by securely covering the glass at night. Top heat may at the first be kept up by placing a lining of litter round the bed if it be an ordinary frame hot-bed made above the ground. But this may not be necessary if it be a brick pit. If the heat of the bed declines sensibly, stronger linings of fermenting dung and leaves must be employed, as no good results will follow if the bed gets cooler than 70°, and this holds good for all sorts of hot-beds for vegetables. The night warmth should be kept between 55° and 58° for the present, and this needs that

the frames be suitably covered at night, as well as slightly ventilated.

Seedroom.—Now is the time to make an examination of all the seeds left over from last year, saving those that are likely to afford a large percentage with germinative power. The extreme time during which seeds of certain vegetables and herbs retain their germinating power is as follows:—

	Years		Years
Angelica	1 to 2	Lavender	4 to 5
Basil and Lettuce	4 to 5	Marjoram and Sage	2 to 3
Cauliflower	3 to 5	Sea Kale	1
Broccoli	3 to 4	Melon	5 to 8
Beans, Kidney	3 to 4	Parsley	2 to 3
Marigold	3 to 7	Leek	2 to 3
Carrot	3 to 4	Beans, Broad	4 to 5
Chicory	6 to 8	Radish and Turnip	5 to 6
Coriander	4 to 5	Scorzonera	2
Endive	4 to 5	Onion	2 to 3
Peas, small round	3 to 4	Spinach, ordinary	4 to 5
„ Marrowfat	2 to 3	Celery }	
Tarragon	2 to 3	Celeriac }	5 to 6
Cucumber	6 to 8	Rosemary }	2 to 3
Kohlrabi	5 to 7	and Thyme }	
Cabbage and Brussel Sprouts	4 to 5		

Before old seed be made use of, its germinating power should be ascertained by sowing some of it in pans placed in a mild hot-bed, counting the seeds sown, and noting the percentage of those which grow. The whole of a parcel of seed may be older than the gardener assumes it to be; or a portion of it may be old, and the rest a part of the last harvest but one, and this fact should not be lost sight of. Having sorted out what is to be kept, wash and otherwise clean drawers, cupboards, and every part of the place.

Buying Seeds.—Look carefully over the list of seeds you purpose ordering from the seedsman, study the requirements of the establishment, and order no more than is necessary. Let some novelties be tested, but grow the more popular varieties for the main crops, and buy the best.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Hiipeastrum (Amaryllis).—Carefully shake out some of the largest and longest-rested bulbs, and repot them in moderately moist soil, and withhold water till growth begins, plunging the pots in a gentle bottom-heat, and keeping each in it till the flower-scape is well advanced, when the pot may be gradually withdrawn, and finally removed to the greenhouse when the flower is expanded.

Lily of the Valley.—Let a succession of flowering plants be kept up by putting a batch into heat at fortnightly intervals, or according to the demand. Cover the crowns with wood-moss till growth commences, afterwards removing the moss, shading slightly for a time, so as to draw up the leaves and flower-spikes, gradually hardening off the plants as the bells open.

Spireas.—Afford these plants the same kind of treatment as that advised for Lily of the Valley. Plants which are growing freely and are well rooted require frequent applications of manure-water, in order to ensure strong flower-spikes and good foliage.

Deutzias.—Place plants in gentle heat for successional flowering, syringing them freely, but affording root-moisture in moderation till leaf and shoot-growth commence, when more may be afforded, also manure-water occasionally.

Rhododendrons.—Some of the early-flowering varieties should be brought into heat, and where house-room is ample, large plants may be lifted from the beds, not tubbing or potting them, but placing them in flat hampers, or in boxes, or on the floor, and simply covering the roots with soil and affording a good soaking of water. It is very necessary to guard against lack of water at the root at any time, otherwise the flower-buds of Rhododendrons fail to open satisfactorily or they drop.

Azalea mollis.—The same kind of treatment as that advised for Deutzia suits this section of Azalea.

Lilium longiflorum var. Harrisii.—The plants should be kept near to the glass, and care taken that they do not suffer from lack of water at the root, and be afforded a temperature of 40° to 45° at night, with plenty of air during the day, but avoiding cold draughts.

Freesias.—Red-spider is the worst enemy of the Freesia, and if these acari are once allowed to take possession of the leaves, the latter are soon spoiled, puny flower-spikes being the result. Let the potfuls of bulbs be placed in a gentle heat, thoroughly

syringing them once a day till the flower-spikes are well above the soil, when they should be removed to cooler quarters; manure-water may be occasionally afforded well-rooted potfuls.

Dutch Bulbs.—The stock of these bulbs that is plunged in coal-ashes out-of-doors, will in many cases have filled the pots with roots, and be growing more freely now, rendering an examination advisable. These that are well-rooted, should be placed in a cold frame for a few days, and shaded, until the leaves have changed to a green tint. Batches of the bulbs thus prepared may be removed to a warm-house or forcing-pit, in order to complete their growth.

Pelargoniums which are growing freely may be shifted into their flowering-pots, using a compost of good friable loam and sand, with a sprinkling of bone-meal; pot firmly, to ensure a short, stocky growth. Place close to the glass, in a temperature of 45° at night, giving air at every suitable opportunity, fumigating on the first appearance of green-fly. The shoots should be suitably staked out as they extend.

THE HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Planting of fruit-trees should be continued during mild weather, and when the soil is in a fit condition. The soil may be lightly trodden, but do not make it too hard when moving it in the winter. No manure should be used when planting, but if the soil be poor, replace part of it with some good turfy-loam from an upland pasture, preferably from one that is resting on red sandstone. Excepting Cherries, all fruit-trees do well in such loam, and it will keep sweet for a long time. Cherries require more lime than is contained in a sandstone soil, and it can easily be added in the form of mortar-rubbish or broken chalk. These substances are also of great benefit to all stone fruits. When the trees have been planted, fasten them securely to prevent them from being swayed by wind or other cause. Trees against walls should only be temporarily fastened to allow for the soil sinking after heavy rains, but Peaches, Nectarines, and Apricots, must be kept closely to the walls until all danger of severe frost is over. Give to all recently-planted trees a mulch with stable-manure or half-decayed leaves, and extend it 1 foot wider than the extremities of the roots; this mulch will hinder frost from penetrating, and encourage an early root-action. Where protection from cattle will be necessary, it should be supplied at once, and the iron and barbed wire-protectors are superior to the old-fashioned wooden cradle, being practically indestructible. Some Kentish growers make a protector from the smaller portions of old Hop-poles, which are cut off in about 6-feet lengths, and then bored through about 18 inches from each end; a piece of wire is threaded through each of these holes, and the ends are joined when enough poles are fixed around the tree, thus forming a long tube, which lasts for several years, and forms a protection against rabbits and hares, as well as larger animals, and also shades the stems from hot sunshine.

Root-pruning is sometimes necessary in the cases of bush and pyramid Pear and Apple trees, and Pear and other fruit-trees on walls. Should the trees be growing vigorously year after year, and remain unfruitful, it is useless to continue pruning above-ground, for thereby growth is encouraged instead of restricted, and the remedy will be found in the discontinuance of pruning entirely, or by cutting off some of the roots. In cases where the tree has to be confined within a certain space, the latter remedy is the only one possible. Small trees not more than 5 feet in height may be lifted entirely, and if the fibrous roots are carefully preserved, they will continue their growth in a modified manner, and form fruit-buds the first season. This operation causes so great a check, that it is best to prune half of the roots one season, and the remainder twelve months afterwards. Take out a trench 6 feet from the stem of the tree upon one side, and make it 2½ feet deep, then work towards the centre with steel forks, preserving the fibrous roots, and cutting off all strong ones having a downward direction. When the roots have been exposed, trim all jagged ends, and if the quantity of roots is excessive, reduce them by removing the coarsest ones. In replacing the soil, lay out all the roots in regular order, and do not allow the points to trend downwards. An admixture of charred garden refuse—one part to five parts of the soil—will be beneficial, and when all is filled in, mulch the surface with strawy litter of half decayed leaves, and secure the tops with wires.

EDITORIAL NOTICES.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

APPOINTMENTS FOR THE ENSUING WEEK.

SALES.

MONDAY,	Jan. 10	Border Plants, at Mr. Stevens' Rooms.
TUESDAY,	Jan. 11	Continental Plants, Herbaceous Plants, Roses, Gladioli, &c., at Protheroe & Morris' Rooms.
WEDNESDAY,	Jan. 12	Japanese Lilies, Azaleas, Roses, Spiræas, &c., at Protheroe & Morris' Rooms.
THURSDAY,	Jan. 13	Roses, Fruit Trees, Shrubs, Palms, Azaleas, Border Plants, and Bulbs, at Mr. Stevens' Room.
FRIDAY,	Jan. 14	200 Cases of Japanese Lilioms, &c., at Mr. Stevens' Rooms.
		Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—36°5°.

ACTUAL TEMPERATURES:—

LONDON.—January 5 (6 P.M.): Max., 54°; Min., 48°.

PROVINCES.—January 5 (6 P.M.): Max., 54°, south-west Ireland; Min., 38°, north-east Scotland.

So far as we know at present, the Quinquennial to be held at Ghent from the 16th to the 24th April next, promises to be the great horticultural event of the season. Unlike the brilliant series of shows held last year at Hamburg, the great display at Ghent lasts but nine days—a nine days wonder! It is, nevertheless, so far as British horticulture is concerned, a more important meeting than that at Hamburg, and it is still one of great moment, though the volume of trade from Belgium to England is less than it used to be before our cultivators found out that they, too, could grow on a large scale, plants which were formerly thought to be a monopoly of the Belgians. How many hundreds of nurserymen there are around Ghent we cannot compute. Many of them are our very good friends, their establishments are always very well worth seeing, and their hospitality—especially at the quinquennial periods—is only too overpowering. Moreover, there is a school of horticulture to which, in default of any of our own, our nurserymen are wont to send their sons. One of our English nurserymen, Mr. SANDER, has established in the neighbouring town of Bruges, a nursery on a large scale, which, together with those in Ghent and Brussels, will attract many visitors from this country.

The exhibition itself will be a reflex of the horticultural activity of the kingdom. There will be seen the noble Palms, Cycads, Tree Ferns, for which there seems to be so little relative demand in this country. There will be the Camellias, all but extinct here (save for the fine collection at Waltham Cross, and some few others). Azaleas, both of the indica and of the mollis sections, will be in profusion; and besides these staples, something of everything.

It is to be hoped that our own exhibitors will, as in former years, show what they can do. Orchids, Cyclamens, Chinese Primroses, Cinerarias, and other things, can be sent from this side of the water without much risk of being surpassed. The show, we may mention, is open to all nationalities, to amateurs, and to the trade. The jury is international, and consti-

tutes a true "concert of Europe," which does know its mind, and how to act as one body. The applications for space should be made not later than March 19, to M. FIERENS, the Secretary. In the programme before us there are 28 groups, containing 716 classes, first, second, and sometimes third prizes being allotted to each class. New plants constitute the group to which most interest attaches. Next come Orchids, stove plants, foliage and floral; Aroids, always a feature at these shows; Palms, usually shown splendidly; Cycads, Pandanads, Tree-Ferns, greenhouse plants, forced specimens, hardy plants, bulbs, trees and shrubs, pot-Vines, forced Strawberries, and miscellaneous exhibits far too numerous to mention, but which may be found in the programme, to be had from M. FIERENS, Casino, Ghent, as before said.

We shall keep our readers informed as to any further particulars that may reach us.

The Weather
and the Fruit-
trees.

THE vicissitude of the weather in these islands is proverbial, and to scarcely anyone is this of so much importance as to private gardeners and fruit cultivators, and especially to those who have extensive walls planted with fruit-trees of all kinds, which are naturally expected by the owners to furnish full supplies of the finer fruits for dessert purposes. The chief danger to be feared this mild season is the excessive forwardness of growth and flower, and the nipping frosts of late spring. In the case of wall fruit-trees, it is evident that the timely unfastening of the branches from the wall, and the postponement of the pruning till the latest possible period, would have the effect of keeping flower and wood-buds dormant, whereas early pruning and nailing would be followed with exactly opposite effects; and having started the basal dormant buds into growth, no further relays are obtainable. Hence we advise delay this season, and the concentration of the labour, unfortunately not too abundant in any garden nowadays, on the carrying out of all seasonable operations, in tree-planting, digging, trenching, and manuring land, and generally in bringing work of all kinds up to date and beyond it, if possible.

Where the complete detachment of the branches and shoots from the wall can be carried out, the more will the tree be removed from the exciting influence of the sun's heat, and the longer the period of bursting into flower and growth be delayed. There is still another method by which rapid advance can be checked, and that is to leave the pruning untouched, and to cover the forwarder kinds of fruit-trees thinly with Spruce Fir branches, nailed to the wall; or to make use of the ordinary blinds and coverings during the day; and so long as the trees are not in bloom, to roll these up during the night, however cold it may chance to be. Having done these things, we must trust to Fortune, and hope for the best.

With orchard and free-standing trees and espaliers, little can be done either in preventing growth, or in retarding it after it has begun. Certainly, in the case of espalier Pears and Apples, a broad board fastened on the top of the fence forms a capital protection against frost after the bloom has burst forth, and the branches of Spruce Fir, Laurel, or Yew, stuck into the soil on either side of an espalier would help to screen it from the sun's warmth; on the other hand, they afford shelter against the cold by preventing radiation from the plant, so that the advantages are problematical at the best. In some cases we

might adopt American and Continental methods, and light smoulder-fires on the windward side of an orchard or a fruit-plantation when frost is imminent, the dense smoke from the fires acting like the clouds in hindering the radiation of warmth from the ground, and giving out, moreover, a slight degree of heat.

Earthenware
Hot-water
Pipes.

A CORRESPONDENT at Cheltenham forwards, for our inspection, a photograph of a span-roofed pit at Pittville, in that town, heated by means of glazed earthenware pipes, resting on bricks laid at short intervals apart on the ground. The method is not new, although the manner in which they are put together exhibits a novel feature. The usual mode of joining the lengths of pipe is to put in a thin luting of clay at the point where the end of a length of pipe abuts on the bottom of the socket of another, and then, having placed the pipe in its proper position, to pour in Portland cement, so as to form a watertight joint. The pipes used are made without sockets; and the joints are formed of two cast-iron rings, each of which fits the pipe at one end, and the larger diameter of one is of such size that it exactly fits into the larger diameter of the other. A piece of tape wound round the junction of the two pipes prevents anything passing into the interior. After the rings are in place, Portland cement is poured in so as to fill the space between the iron rings and the pipes.

Amongst other advantages, the economy of using stoneware instead of cast-iron pipes is considerable, the difference being, says our correspondent, about 50 per cent., in addition to the fact that the joints can be made by an ordinary garden labourer.

Pipes of this kind are practically everlasting, provided they are out of the way of blows from falling pots, bricks, and the various objects that seem to be always lying in wait, as it were, to bring about the destruction of fragile wares. They would, however, answer admirably as a means of affording bottom-heat to Cucumber, Melon, and Pine-beds, warming tanks in aquaria, imparting heat to Asparagus-beds in the open-air; and in other positions where accidents to them are but little likely to happen, or where, from excessive moisture, the life of cast-iron pipes is of short duration. We have used earthenware glazed pipes of 8 to 10 inches in diameter as hothouse flues with satisfactory results, these being removed from chance of breakage by being placed beneath the plant-stages and benches. They are much to be preferred to the brick or tile-flue which, however well it may be constructed, is a source of danger to the plants from its liability to emit smoke and other products of combustion into the glass-house through some of its many joints. By having pipe flues constructed with close-fitting soot-doors every 15 or 20 feet, it is an easy matter to clear them of soot.

A GRAND PLANE TREE, AND OTHER TREES, AT MOTTISFONT ABBEY.—The two different views (figs. 9, 10) of a very large *Platanus orientalis* (Common Plane) were kindly sent us by Mr. G. MEINERTZHAGEN, in whose garden at Mottisfont Abbey, Romsey, the tree is growing. In the note accompanying the photograph of the trees, Mr. MEINERTZHAGEN says:—"The re-rooting of the branches is very marked. The Plane-tree is, I believe, the largest in England, measuring round the trunk at $4\frac{1}{2}$ feet from the ground 29 feet 8 inches. From tip to tip of the branches it covers 129 feet. There is only one branch allowed to take root, the others being propped up to keep the space open under the tree. A

tree of Spruce Fir growing in the same garden, has produced from a branch, a tree three-quarters of the height of the parent tree, which seems now to be dying, the offshoot being strong and vigorous. Two other stems of this same tree have had the intervening branch severed for some years, and are now growing well. A Chestnut-tree [of which a photograph was also sent. Ed.] has taken root in nine places, each branch producing quite a good-sized tree, the whole covering a large area of ground."

ROYAL HORTICULTURAL SOCIETY.—The first meeting of the committees of the Royal Horticultural Society in 1898 will be held, as usual, in the Drill Hall, James Street, Victoria Street, Westminster, on Tuesday next, January 11.

GARDENERS' ORPHAN FUND.—Some complaints have reached us to the effect that cards soliciting votes, and mentioning the names of certain subscribers as nominators, have been issued before any official announcement from the committee has been circulated. We suspect the nominators are within their rights, but it is a right that it were better not to exercise—in order to avoid friction and unpleasantness.

HORTICULTURAL CLUB.—The usual monthly dinner and *conversazione* will take place on Tuesday, the 11th inst., at 6 p.m. The subject for discussion will be, "The Seasons of 1896-97; their Lessons and Effects on the Fruit Crops and Trees." To be opened by Mr. GEORGE BUNYARD, V.M.H.

THE CLIMATE OF BUTE AND OF KENT.—At this season of the year it is customary for the great trade houses—and the little ones too, for that matter—to gather together their *employés* at a social gathering, when the anxieties of business are for a few hours dismissed, and reciprocal goodwill and enjoyment take precedence. We receive numerous reports of such gatherings, which our space forbids us to insert. They are naturally principally of a personal character, and not of public interest; while to make advertising capital out of such matters is to spoil their essential characteristic. Nevertheless, at some of these gatherings some interesting facts are elicited. Thus, at the gathering of DOBBIE & Co., it was stated that Mr. DOBBIE began business with half an acre of ground—a parallel to the small cabinet



FIG. 9.—PLANE TREE SHOWING ONE BRANCH RE-ROOTED, AT MOTTISFONT ABBEY, ROMSEY. (SEE P. 24.)

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The committee has decided to hold the annual friendly supper of the members of this institution and their friends, at Simpson's, 101, Strand, on Thursday, January 20, at 6 p.m., after the Annual Meeting, when ARTHUR W. SUTTON, Esq., of Reading, will preside. Friends who are desirous of being present at this, the 60th Annual Meeting, are requested to intimate their intention to Mr. GEORGE J. INGRAM, Secretary, 50, Parliament Street, S.W.

—We have much pleasure in announcing that His Grace the DUKE OF PORTLAND has kindly promised to preside at the 60th Anniversary Festival Dinner of the Gardeners' Royal Benevolent Institution to be held, it is hoped, in June next, but the date is not yet fixed.

THE MOST EMINENT ORDER OF THE INDIA EMPIRE.—Botanists and horticulturists will rejoice to hear that Brigade-Surgeon-Lieutenant-Colonel GEORGE KING, Superintendent of the Calcutta Botanic Garden, has been promoted by Her MAJESTY to be Knight-Commander, and will henceforth be known as Sir GEORGE KING.

CHEMISTRY OF HORTICULTURE.—It is reported that the Royal Horticultural Society is about to appoint a professed chemist, whose duty it will be to furnish analyses of soils, waters, manures, &c., at a relatively low price, to Fellows of the Society. We believe Dr. VOELCKER, who holds a similar position in the Royal Agricultural Society, will in the future act also as Consulting Chemist to the Royal Horticultural Society.

that was the germ of the great firm of SUTTON'S. The contrast between the climate of West Kent and that of South-west Scotland was strikingly illustrated by Mr. FIFE, who said that their experiences in the south had been very varied. They had had variations in climatic conditions which he believed they rarely experienced in Bute. In the last three years he had been privileged to be in the coldest climate he had ever experienced, with a temperature at least 8° or 10° below zero; and he had also been in the hottest climate he had ever endured. He had seen it rain as he had never seen it rain in Scotland, and he had seen a drought with the land so dry that no one in Bute could realise.

AGRICULTURE IN ABERDEEN UNIVERSITY.—Short courses in agriculture and allied subjects,

intended specially for young men who would not think of taking out a full university course, but who could conveniently attend a month's course of instruction in the depth of winter, when work is slackest at home, are to open in Aberdeen University, on January 10. In addition to lectures on subjects likely to be useful to agriculturists in the north-east of Scotland, instruction will be given in the laboratory in the chemistry of manures and soils, and also with regard to the identification of grass and other seeds, and with practice in germinating seed. Saturday visits are also contemplated to farms in Aberdeenshire and Forfarshire.

THUYA PLICATA (GIGANTEA).—A portrait of the base of the trunk of a remarkable specimen of the so-called Red Cedar of the north-west coast (*Thuya plicata* or *gigantea*) is published in a recent issue of *The Pacific Rural Press*. This tree stands near Snoqualmie Falls, on the Seattle and International Railway, and the circumference of the trunk at the ground is given as 100 feet 7 inches. As this is one of the slowest-growing of the western Conifers, this tree has probably lived for more than a thousand years. *Garden and Forest*, November 17, 1897.

CAIRO.—M. DELCHEVALERIE has published in the French language an account of the Ezbekieh Park at Cairo, in which the origin and progress of this park are briefly sketched. The area is about 8 hectares, and it has been simply and effectively laid out by M. DELCHEVALERIE and the late M. BARILLET. In the present pamphlet an enumeration of the more remarkable trees and shrubs planted is given. Among them are *Balanites egyptiaca*, a native of the Sudanese desert, which requires no artificial watering; *Dalbergia melanoxylon*, from Abyssinia, has flowered and ripened fruit; the Banyan, *Ficus bengalensis*, is at home; *Bauhinia purpurea* and *Poinciana regia* embellish the gardens. The boulevards are planted with *Albizia Lebbeck*, the most elegant tree for the purpose, and easily transplanted, seeing that the bole alone is necessary, the head and the roots being cut away far off in Lower Egypt, and transported to Cairo—once planted, they speedily throw out new roots and new foliage.

MESSRS. HUGH LOW & CO.—One by one the old-established suburban nurseries are being ousted, and compelled to seek other quarters. We have been familiar with Low's, of Clifton, throughout our lives. Now it appears that it is, or soon will be, a thing of the past, and we shall have to speak of Low's of Enfield (Bush Hill Park). The locality is a secondary consideration. Messrs. Low & Co. will take with them their reputation, and that is of the highest.

WILLIAM PLUMB.—The newly-elected President of the New York Florists' Club, says the *American Florist*, was born in Huntingdonshire, England, in the year 1850. In early youth he was apprenticed at Sevenoaks, Kent, and his capability and fondness for his profession quickly brought him forward as a gardener of recognised ability. As a journeyman at Greenrold, Halifax, he won many awards at the local exhibitions. The first place he had full charge of was Swinton Park, Manchester, where he remained two years, and then came to America (he having visited this country for a brief time previously), and took charge of ROBERT COLGATE's place, and later on S. D. BANCROCK's estate, and several other large places at Riverdale, N.Y. He now superintends the fine estate of C. P. HUNTINGTON at Throgg's Neck. Mr. PLUMB has been for years an enthusiastic worker in the New York Florists' Club, also the S. A. F., and there is no man more popular among his fellow-members in both organisations than he. Fault-finding or contrariness find no place in his sunny disposition; he is uniformly cheerful under any and all circumstances, and always ready and willing to render a service when opportunity presents. No president ever came to the chair in the New York Club with more friends and fewer critics than President-elect PLUMB, and there is no doubt that a year of pros-

perity and advancement is assured during the coming administration.

JADOO.—The Report of the Agri-Horticultural Society of India mentions that Tea-plants in Cachar, grown in Jadoo-fibre, are taking a decided lead of the others in height, and a similar occurrence has been noted in the Society's garden. Mr. HELPS reports that Orchids show splendid roots when grown in this material.

VINTON'S AGRICULTURAL ALMANAC—"A Year-Book for Farmers and Landowners."—This is the successor to a similar publication issued by our late friend and colleague, JOHN MORTON. In addition to tables and calendars there are some very readable and useful articles, such as Mr. CLARE SEWELL READ's reminiscences of farming in Norfolk, and such a mass of information that the "almanac" may be called encyclopædic.

QUEENSLAND NEPENTHES.—Mr. F. M. BAILEY, the Colonial Botanist of Queensland, figures and describes in the *Queensland Agricultural Journal* two species of *Nepenthes*, viz., *N. Kennedyi*, F. v. M., and *N. Bernaysii*, Bail. Four Australian species are now known, and will doubtless soon make their appearance on our exhibition tables.

ALLOTMENTS IN THE COUNTY OF SURREY.—The Technical Education Committee of the Surrey County Council seem desirous of doing much more than has hitherto been done by that enlightened body, to give additional interest to allotment cultivation, and also to have all the principal groups federated, to some extent, so as to secure for them, as frequently as possible, oversight and "pointing," on the County Council basis, by the recognised instructors and experts. Hitherto, these horticultural teachers have been empowered to visit such groups of allotments as they may be invited to do so by the local committees. These groups have been pointed according to the recognised scale, and in that way their progress or otherwise could be determined yearly. The Technical Education Committee, as the result of this judging, have occasionally granted Certificates of Merit to the best plots, although not twice to the same person; and distributed useful elementary books on gardening. These awards have, so far, been much appreciated. The energetic chairman of the County Council, Mr. E. J. HALSEY, is now anxious to have all groups of allotments in the county brought under the same supervision for identical purposes, believing that a considerable impetus to allotment cultivation and expansion would result. Mr. HALSEY hopes even to obtain eventually a federation of all the various district or parochial cottage-garden or similar societies in the county, and ultimately to have annually in one part or other of the county a county exhibition of allotment and cottage-garden produce. Circulars inviting acceptance of these proposals have been issued to all known societies in the county. What the result will be, time will show.

ACCIDENT TO MR. C. C. HURST.—We are sorry to hear that Mr. C. C. Hurst, junior partner in the firm of B. HURST & SON, Burbage Nurseries, Hinckley, met with a rather serious accident while hunting with the Atherstone Hounds, on Friday last. Mr. Hurst's horse, in taking a fence, jumped into a "blind" ditch, turned right over, and fell heavily on Mr. Hurst's head. Mr. Hurst who is suffering from slight concussion and general shock, is progressing favourably. It will perhaps be remembered that Mr. C. C. Hurst recently read a paper before the Royal Horticultural Society on "Some Curiosities of Orchid Breeding" (see *Gardeners' Chronicle*, (Oct. 16., p. 278).

"GARDEN AND FOREST."—We greatly regret to learn that one of the foremost horticultural journals of the world, and one for which advanced horticulturists and botanists had the greatest respect, has collapsed for want of adequate support; it was too good.—"With the present issue, which completes the tenth volume, the publication of *Garden and*

Forest ends. For ten years an experiment has been tried of publishing a weekly journal devoted to horticulture and forestry absolutely free from all trade influences, and as good as it has been possible for us to make it. This experiment, which has cost a large amount of time and money, has shown conclusively that there are not persons enough in the United States interested in the subjects which have been presented in the columns of *Garden and Forest* to make a journal of its class and character self-supporting. It is useless, therefore, to sink more time and money in a publication which cannot be made financially successful, and must, therefore, sooner or later cease to exist."

PUBLICATIONS RECEIVED.—*Farming World Year Book*.—*Cyclamens*, and *How to Grow Them*, a practical treatise, by F. C. Edwards, Sholebrooke View, Leeds; a useful little treatise that may be commended to beginners. — *Transactions of the English Arboricultural Society*, vol. iii., part iii., gives details as to the excursion of the Society into Norfolk in August, 1897. — *Journal of the Royal Horticultural Society*. — *The Journal of the Board of Agriculture*. — *De l'Emploi Populaire des Plantes Sauvages en Savoie*, par le Dr. Alfred Chabert. — *Tijdschrift voor Tuinbouw*.

A FRENCH GARDEN IN 1545.

(Continued from p. 12.)

AREA ESCARIA.—In this there should be two beds, one for such vegetables of which the fruit is eaten, the other being for root crops.

PULVINUS FRUCTUARIUM.—The fruit-bed has *Pepo*, numerous kinds of Gourds, the Cucumber, and Melons, and the citrullus or colocynth of medical men. The author also alludes to the large Maltese Gourds, which are still cultivated there; and mentions a practice of watering Gourds with sugared water, by which the taste is improved, such being called "*Pompens succarins*," or Sugar-Melons. Of the Cucumber, there is the cultivated and wild, or *Cucumis asininus*. This last is the *Ecballium agreste*, or Squirting Cucumber.

Mala insana, or fruit of the Mandrake.—This was eaten with oil, salt, and pepper. He also describes a sort with prickly stems and foliage. This would probably be *Solanum sodomæum*. He also describes the "male" and "female" Mandrake; of course, imaginary distinctions.

Strauberry.—The fruits, of the size of a nut, were eaten with cream or sugared wine. There was a mountain form, probably *Fragaria vesca*, var. *alpina*.

Rubus Idæus.—Both white and red Raspberries.

Coriander.—A new plant in French gardens; and Anise, used as a stimulant for the appetite.

Cinara.—"A kind of cultivated Thistle, the top of which, as it were a fruit, we eat."

Papaver.—Though often grown in a kitchen garden, it is not edible, but the seed is used to encourage sleep. Imagination must have effected this, for Poppy-seed, it is now known, does not contain the opium!

PULVINUS RADICARIUS, or the root-bed.

Radicula. Radish. The root raw, cut up small, with water and salt, provokes the appetite. He says some kinds are sweet, others acrid, but does not mention different forms. Another *Raphanus*, which the Romans call *Armoracia*, has leaves like those of the cultivated Radish. A third *Radicula* the Greeks call *Struthion*, used for cleaning wool. "It is a spiny herb, with a woolly stem, a handsome flower, without odour, &c." This plant has been thought to be *Gypsophila struthium*, or *Reseda luteola*; but the above description (taken from Pliny) is inapplicable. Pliny adds, "it grows upon rugged rocky sites;" and describes it as an umbellifer. *Matthæus Sylvaticus* gives several opinions, but decides nothing about it. He wrote in 1480. In 1760 an umbellifer was cultivated for medicine under the name *Struthium* (Lewis, *Mat. Med.*).

Rapum or *Napum*.—Fr. "Naveau." Used for flavouring soups. The author compares the shape of the root to the corn of the *Cyclamen*. There were

two sorts, one gritty to the teeth, the other very sweet and yellowish.

Rapunculus or *Napunculus*.—This has a blue flower. The root is to be seen on the tables of the rich and luxurious. Some call it "Looust," or "Locust's-foot," from a likeness in the root, "whence even they thought it to have been the food of John Baptist in the desert, for it grows in uncultivated places." It is *Campanula Rapunculus*.

Scrophularia major has a root resembling the *Rapunculus*, most pleasant to the taste and scent." Girarde figures this as a species of *Scrophularia* or Figwort.

Parsnip, Carrot, and species of *Panax*, a foreign Umbellifer, with yellow flowers, and entire sub-

mander. It is *Teucrium Scordium* or Water Germander. Of other bulbs he mentions *Ascalonitas*, "Des eschalottes," i.e., *Allium ascalonicum*. Bulbus *agrestis*, "des Oignons sauvages," probably *Allium ursinum*. "The most noble of bulbs is the Scilla," "Des Squilles," *Urginea scilla*, the medicinal squill; Pancration, probably *P. maritimum*; *Asphodelus*, called *Hastula regia* and *Albucus*, *Asphodelus ramosus* of south Europe. From 10th to 15th century, *Hastula regia* was the Woodruff.

Helonium, *Elicampane*, is the last plant mentioned by our author. The book concludes with a short treatise, *De cultu et satione horticorum libellus, et antiquorum agricolarum sententia precipue collectus*. *George Henslow*.

have the largest crops; from both countries offerings have already been freely made in large quantities; the States seeds are clean, but lack size. The north of France samples are the best we have seen from there for some years, large-grained, and of good character. As usual, there will be considerable quantities of the very weedy small-grained seed from the badly-farmed districts of the south of France. Canada has not at present placed much on the markets, and neither Germany nor Russia offers with the freedom they have done for several seasons.

White Clover.—A fair English crop, but fine samples will be scarce. The large American supply that characterised last year's trade cannot be repeated; but the German offerings are plentiful, especially of



FIG. 10.—LARGE PLANE TREE AT MOTTISFONT ABBEY, ROMSEY: TRUNK 32 FEET 7 INCHES; COVERS 129 FEET OF GROUND. (SEE P. 24.)

cordate, oblique leaves, with a juice like *Opopanax*, and grows best about water. As other kinds of *Panax*, the author includes *Asclepium*, *Chironium*, *Ligusticum*, and *Sphondylium* (of Greeks); Fr., "Panaïs sauvage."

Sisaron (Grk.), *Siser* (Lat.), Fr., "des cheruits," now spelt "chervis;" Eng., Skirrets.

Siser sisarum was introduced from China into England in 1548; Daubeny (*Roman Husbandry*) suggests that the *siser* of the ancients was *sium nodiflorum*. This, however, does not agree with Gerarde's figure. Pliny says the best grew in Germany.

Cepa, many varieties of Onion, white, red, large and small, or "oignonettes."

Allium, Fr., "des aulx;" *Scorodoprason* (*Allium descensum*, acc. to Daubeny), and *Scordion*, lately introduced. This plant the author describes as only having the odour of Garlic. It was called *Trixago palustris* by the Latins, and has leaves like the Ger-

CLOVER AND GRASS SEED CROPS.

MESSRS. Hurst & Son, Houndsditch, London, forward for publication the following estimate of the stock of grass and Clover, and other agricultural seeds, of last year's harvesting:—

English Red Clover and *Cow-grass* will vary more in quality and character than they usually do, and we are of opinion that the superior grades will be very scarce. The eastern counties have by far the largest crops, the southern, western, and midland counties have in the aggregate a largish acreage, but the samples from these districts that we have already seen show inferior quality, not well ripened, and the yield per acre unusually small. Yearly, or rather two-year old, seed, for there was only a small quantity saved in 1896, is now almost exhausted.

Single Cut Cow-grass—Is in small supply.

Foreign Red Clover.—France and America seem to

the lower grades. The finest samples are undoubtedly scarce everywhere.

Alsike.—Seems to be in much smaller compass this year. For several seasons it has been abnormally plentiful, Canada sending us heavy supplies; so far this season the offerings are on a very restricted scale, and the samples lack good colour. The German crop we hear is an average.

Trefoil.—A smaller crop of English than usual; and although the Continental crops are not up to an average perhaps, the very large quantities of yearling seed still held in this country will prevent prices being high.

Lucerne.—Short crops both in France and America.

Sainfoin.—English Giant an under-average crop; a fair supply of English common. French Giant is reported scarce, and of generally inferior quality.

Italian Rye-grass.—The French crop is under average, and fine Mayenne does not offer freely; the

re-cleaned qualities will be very scarce towards the end of this season. Irish crop again large, and of good quality. English quite up to average.

Perennial Ryegrasses.—Not quite such large crops as for several years past, but still plentiful. The natural weight per bushel lower than last year.

Natural Grasses.—Vary as usual. Cocksfoot is in fair supply from New Zealand, but we are not getting offers from America. Timothy still plentiful. Crested Dogtail in larger supply than for several years. Meadow Fescue very fine, but not so plentiful as last year. The Poas in short supply; this applies also to Sheep's and Hard Fescue.

ALPINE GARDEN.

NEW AND RARE PLANTS FOR ROCKERIES.

THE genus *Acæna* includes some very interesting little species, some of which are new introductions, and prove very hardy here at Geneva. For instance, the beautiful, small-growing *A. Buchanani*, Hook. f., nearly allied to *A. microphylla*, is a gem in rock-gardens. It is a very slow-growing shrub, caespitose, spreading over the soil, with a very pretty foliage of a light, almost sky-blue colour in the sunshine, and hardly at all green. The leaves (eleven leaflets generally) are delicately incised and crenate, and the whole tuft is exceedingly dainty. The flowers are not worthy of mention, being like those of the other *Acænas*, which are all inconspicuous. We received the seeds of this plant from Mr. Cockayne in New Zealand, who found it in the mountains of the Otago country.

Acæna glabra, Buchanan, is another newly-introduced species, for which we are indebted to Mr. Cockayne; the stems are erect, the leaves brownish-green, seven to eleven leaflets.

A Russian botanist, already well known for his discoveries in the Caucasus, Mr. N. Alboff, is now in La Plata, and has made some botanic excursions in "Tierra del Fuego" and "Magellan," whence he sent us last year a fine collection of seeds, from which already some results have been obtained. This has particularly been the case with a very good form of *Acæna adscendens*, with glaucous foliage, quite bluish, which seems to be very hardy, and easy of cultivation.

While speaking of *Acænas*, it might be said that it is an interesting genus for foliage, which is in all specimens good, and sometimes very ornamental. But I know few genera more polymorphous than this. A good little monograph upon them has been lately published in Paris by Dr. P. Citerne of Nantes.* Although their flowers are not attractive, *Acænas* can be recommended for the rock-gardens for their foliage, and for the long and graceful sarmentose branches many of them produce, especially the so-called "Bidi-Bidi" of New Zealand. *A. sanguisorba*, Vahl, which is called sometimes Piri-Piri, Hutu-Waii, or Piri-Kahu.

They are, I believe, all hardy in England, but in Geneva some of them have to be kept in a frame or conservatory for the winter. Fourteen species are now cultivated in Europe; Dr. Citerne enumerates forty-two species; and Mr. Alboff, last year, published two new kinds—*A. tenera*, Alboff, and *nudicaulis*, Alboff. Their cultivation is easy; they like sunshade, but a fresh atmosphere.

Acanthosonchus spinosus, Forek. (*Sonchus spinosus*, D.C.; *Lactuca spinosa*, Lam.), is a very small and thorny shrub, not more than 3 inches high, forming a Lilliputian bush, with a few small leaves, and some little yellow heads, very similar to those of the common Lettuce, the whole being hidden by numerous short, spinose, and erect branches, which give the plant a very curious appearance. It grows between the rocks in North Africa, the Canary Islands, and Arabia. It is not hardy in Geneva, and

never seeds. I never saw this shrub in collections so I think it is very rare.

Alsine juniperina, Fenzl, is a pretty little caespitose plant growing in the dry rocks of Greece, Syria, and Palestine. The little branches spread over the soil, are prostrate or erect, and bear numerous fine and spiny leaves, fasciculated, and sometimes bear very numerous little white flowers from June till autumn.

Anemone rubra, Lam., is a very good form of the common *Pulsatilla*, which grows in the neighbourhood of Lyons, and of which the flowers are as large as those of *A. Halleri*, of a deep, velvety, garnet-red. It is a beautiful plant, easy of cultivation, requiring a soil destitute of lime, as the plant is a sand-loving species, which does not thrive on calcareous soil.

Antirrhinum glutinosum, Boiss. et Reut., is one of the best plants for the decoration of old walls or sunny perpendicular rocks. It is a good Snapdragon, of free growth. Its large white or pinkish-white flowers are very numerous, and open from June till the winter. I gathered to-day (November 26) a bouquet of the flowers from my wall, where two good plants have been established for the past five years. Some people in England to whom we sent it wrote that it cannot be considered as hardy in England; but this is an error, as the plant is very hardy here where the winters are more severe. I believe that the English fog or the dampness of the air must be prejudicial to it, and so I recommend it to be planted in a wall exposed to the full sun. Boissier found this plant fifty years ago in the rocks of the alpine regions in the sierras of South Spain. It has been cultivated in his gardens at Valleyes since that period, but I believe that the plant is very rare in gardens.

Aquilegia formosa, Fisch.—Under the name *A. arctica*, Hort. Loudon, the *Flore de Serres et des jardins de l'Europe*, Van Houtte, t. viii., published a coloured plate of the rare and fine *A. formosa*. Its stems are slender, and 2 to 3 feet high, almost naked, and bear at the base two or three leaves with narrow segments, glaucous beneath, and of a deep green above. The flowers are not numerous, but very pretty, long, narrow, with long and thin spurs, of an intense cinnamon-red, with green spots on the extremities of the spurs and petals. It flowers late, in July and August, and is quite distinct from all other *Aquilegines*. It has been said that this plant is the true *A. Skinneri* of Hooker, and corresponds to the No. 1182 of Pringle in the Kew Herbarium; this I cannot verify. The *A. formosa* (true) is rare in gardens, and De Candolle (*Prodromus*, vol. i., p. 50) says it is a native of Kamtschatka. But it has been found in the far north of America, and certainly grows in Alaska and other parts of Russian America, and of Canada. It belongs to the same group as *A. canadensis*.

Aster Amellus albus was found four years ago in Jura, and was introduced into cultivation through our garden. It comes true to seed. All the fruit harvested gives the white form, and not one returns to the type. *H. Correvon*, Geneva.

(To be continued.)

JAPANESE TREE-STRANGLER, OR STAFF TREE (CELASTRUS ARTICULATUS).

CELASTRUS scandens from North America has long been known, but is not very commonly seen in our gardens. Our present plant is a smooth leaved and very free growing climber, just now covered with clusters of orange-yellow berries or capsules, which bursting open reveal the orange red seeds, as shown in the sketch sent herewith. The gracefully intertwined stems covered towards their upper extremity with fruits in all stages of colour and ripeness, make up a pretty little picture at Newry, where I lately saw this species for the first time sprawling about over some low-growing trees.

Planted near to any tree of no particular value or interest, such as a Crab or a gnarled old Hawthorn, and a most interesting and unique feature would soon be formed; or it might be tried on wood screens

and palings. Its growth is so rampant (*grimpeante*, the French call it, I believe), that only the most vigorous of living trees would be able to endure its double coiled and intertwined embrace.

To those who are on the look-out for a climber of the most luxuriant type, I should recommend this as being even more so in its tree-strangling propensities than is *Periploca græca*, or our own "Travellers' Joy" (*Clematis vitalba*). For covering pergolas, or gazebos in the garden it might prove useful, especially so in those peculiar sites in most gardens "where nothing will grow."

A cluster of scaffold poles, with their lower ends charred and set in concrete, might be employed instead of sacrificing a living tree. Such as pergola or "pelarg" planted with this climber, *Periploca*, *Bridgesia*, *Travellers' Joy*, and the Common Hop plant could not fail to become covered with vegetable tracery, in a very short time.

My sketch (fig. 11) was made at Newry, co. Down, in October last; the only drawback to the fruitful beauty of the plant is that the birds seem extremely fond of its ripe seeds, and attack its fruits as soon as they burst open. Probably spraying with copper and lime solution would save the fruits of *Pyraecantha*, *Cotoneaster*, *Mountain Ash*, and of this *Celastrus* if applied at the right time. *P. W. Burbidge*.

HOME CORRESPONDENCE.

"THE ROSARIANS' YEAR-BOOK:" A CORRECTION.—There is an error of some importance in the article entitled "Roses in the South-West of Scotland," contributed by myself to the *Rosarians' Year-Book*, for which I do not hold myself responsible, and which I certainly did not observe when I corrected the proof. If I did not take the opportunity of correcting this typographical mistake (which occurs on the last page of my contribution), it might be supposed by the readers of the *Rosarians' Year-Book* (most of whom are capable of detecting such an error), that I had included Turner's Crimson Rambler and Paul's Carmine Pillar among the Hybrid Teas! I need hardly say that such was very far from my purpose. *David R. Williamson*.

SULPHURING VINES.—The caution respecting burning flowers-of-sulphur in vineries is necessary to the inexperienced; still, sulphuring can be done if judgment be used. When living at Blairquhan Castle Gardens, forty-nine years ago, the then gardener, Mr. George Hunter, used annually to burn flowers-of-sulphur in the vineries after they had been started a week or ten days. He wished to revive any insects that might be on the Vines, and then kill them. Of course, the buds of the Vines had not pushed out sufficiently to be injured. I never saw any harm done to the Vines, but some of the fumes of the sulphur escaping through a partition into a greenhouse, laid their mark on a Banksian Rose trained on the top and against the back wall. I have never tried this method here, as our vineries are never free of plants in leaf. I have, however, found sulphur to be of great use in vineries. Thirty-five years ago we had Vine-mildew here very badly. I used sulphur with the sulphurets on the leaves, as recommended in the *Gardeners' Chronicle* of those days, which checked it a good deal. I also put a rather heavy dusting on the flues, and made them very warm so as to cause the sulphur to bubble on them, but not to burn. This would cause a mist in the house, the sulphur evaporating. Vine-leaves within 3 feet of the flue would not be injured, but the mildew entirely disappeared. This requires great caution, or damage may be done; indeed, it should not be attempted while the berries are small; they must be at least half-grown. *John Barnett, Decker Hill, Shifnall*. [Our readers, after conning the above, will be wise if they use sulphur in vineries with the utmost caution. Ed. J.]

APPLE ROYAL SNOW.—I was pleased to see the remarks respecting this Apple in your last issue. For some years I grew the variety on my fruit-farm at Stoney Creek, Ontario, Canada, where it was an abundant bearer, and the perfume and flavour of the fruit was excellent. Since commencing fruit-growing in Kent, I had decided to introduce it into this country, and now I see that Mr. W. Horne is also about to do so. I shall anxiously await the contest that will come between Royal Snow and Cox's Orange

* "Du Genre *Acæna*," parle Dr. P. Citerne, dans *Revue des Sciences Naturelles de l'Ouest*, 1897, Nos. 1, 2, et 3.

† "Contribuciones à la Flore de la Terre de Feu," dans *Revista del Museo de la Plata*, t. vii.

Pippin, at the Royal Horticultural Society's fruit show. It is the only serious rival that Cox's Orange Pippin is likely to have for some time. *C. Aitken, Fruit-Grower, Orpington.*

THE GARDENERS' ROYAL BENEVOLENT INSTITUTE.—Besides electing under Rule 3 no fewer than ten applicants for pensions, all of whom have been subscribers or life members of the institution for fifteen years and upwards, the committee also invite votes from subscribers to enable nine others to be elected by ballot, and they issue a list of forty-four applicants for pensions from which those nine are to be selected. Going over that list carefully, I have no doubt every case is a deserving one, and I find that whilst twenty-

year. It is indeed pitiful to find how many distressing cases there are in the ranks of gardening, but all the more forcibly do they show the necessity of making better provision towards old age than many seem to have done. Even of those subscribers up for election, the greater number seem to have deferred subscribing until sixty years of age and upwards. *A Subscriber.*

PLANTS THAT SUCCEED UNDER THE SHADE OF TREES.—Kindly allow me to add a few names of plants to Mr. Herrin's list, which I find grow well here in Devonshire, planted beneath the shade of tall coniferous or deciduous trees that have lost their under branches. Most of the bushy Veronicas

gardener) to convey cut flowers of border Carnations to a provincial show. I am a subscriber to four up-to-date societies, although I have not taken any active part in their management for some years past; nevertheless, my love for all appertaining to my long-cherished profession burns with the same vigour as in the days of Auld-lang-Syne, when the vast and grand gatherings used to take place at Chiswick, Surrey Gardens, Cremorne, Stoke Newington, and many other localities, at which places I have met hundreds of exhibitors and friends, who have long since been consigned, with the lovely plants shown, to mother earth, and who have left records behind that exhibitors may do well to imitate and follow. I am led to believe that all those who have the welfare of the National Chrysanthemum Society at heart will do well to read thoroughly and attentively, and digest all that has from time to time been advanced by your correspondent, Mr. R. Dean, the indefatigable secretary of the National Chrysanthemum Society. I am fully in accord with all he stated in your issue of last week (p. 14), as I am convinced from past experience that it is not always wise to put a certain limit to entertainment when it is sought to gratify the various tastes of the general public. I have had on many occasions exhibits in spacious halls and tents, when those who had taken great pains to provide a good display had for their disinterested painstaking the most discouraging results; and it is patent that it is seen that not only in the metropolis but in very many large provincial towns, villages, and hamlets, an amazing advance has been made to instruct and entertain visitors with a cheerful and varied entertainment. If we are constantly looking upon exhibits of a similar description and character, the mind becomes tired and satiated, and to dwell upon stands and tables of cut Chrysanthemums, very much of a similar character, becomes tiresome, hence it is a wholesome change to be led to an exhibit such as Messrs. H. Cannell display with their grand collection of zonal Pelargoniums, in my estimation one of the leading features in the whole show. Then, again, how grandly are fruits and vegetables shown—dispense with these extras, and the seductive strains from the band engaged, and the varied means employed to make us feel our blood tingling through our veins in full zest of innocent enjoyment. It is well to pause, as it may happen that to leave a comparatively suitable home may lead to very unsatisfactory results. *G. F., F.R.H.S., Lewisham.* [The writer, to whom we offer our compliments and congratulations, has been a subscriber to the *Gardeners' Chronicle* since its foundation in 1841. Ed.]

— Mr. Dean disagrees with my statements, see p. 448. I need only refer him to letters written by himself in recent numbers of *The Journal of Horticulture*. The way in which the National Chrysanthemum Society has grown and prospered, has not to my knowledge been questioned, and Mr. Dean says this has happened since its association with the Royal Aquarium, Westminster; the fact of the Aquarium Company reaping much of the benefit from the shows cannot have helped the progress of the National Chrysanthemum Society; the Aquarium Company pockets the profits, the contributions of the members thus go towards providing shows for its benefit instead of forming a reserve fund for the National Chrysanthemum Society, and the further encouragement of Chrysanthemum culture. As to the entertainments provided, I have nothing to say against music-halls as such, they are doubtless necessary for a certain class of people who cannot appreciate anything better, but Chrysanthemum-growers do not go hundreds of miles specially to enjoy miscellaneous exhibitions, although Mr. Dean says that those at the Aquarium form a source of attraction to members of the gardening profession. I cannot, however, agree with him; and I think that gardening has no connection with these things. Those few who wish for music-halls can get them nearer home or at other places in London; we, on the other hand, desire to see the flowers under the best possible conditions, to observe the newest and the finest varieties, and the highest points of beauty to which these varieties attain. To talk of mutual converse, warmth, light, and life is only attempting to throw dust in the reader's eyes. Could not all these things be got in another building, and in greater perfection? At present, the beautiful flowers are simply degraded by their surroundings, and have no field for exercising the influence peculiar to them. Moreover, a better class of visitors who would patronise the shows if held under better conditions, is kept away. As to other shows that have failed, reasons could easily be given for most of those



FIG. 11.—CELASTRUS ARTICULATUS: SEEDS YELLOW. (SEE P. 28.)

(From a sketch by Mr. Burlidge.)

three of the number have been, or their representatives have been, subscribers for varying periods, of the remainder no fewer than twenty-one have no such qualifications. In face of these facts, may I suggest that the rules were so far altered as to render subscribing applicants or their widows only eligible for the ballot. The matter must sometime be faced, and is it not well to face it early? A list of forty-four applicants is at once an immense and bewildering list. In marking my paper I have voted for subscribers only, and for those who, having already got into four figures, seem to have some chance of election; many have no chance whatever of being elected for several years. A concentration of votes to subscribers would help to place those not elected into a better position another

thrive in such dry positions, and where fairly sheltered from cold winds. I am well aware these do not prove hardy in every county, but I can strongly recommend them for this purpose where they thrive outdoors. Another good dwarf plant is *Hypericum perforatum* [? *calycinum*. Ed.], an evergreen that increases rapidly in size, and flowers well under the shade of trees. I have also found *Berberis aquifolium*, *B. Darwinii*, and *B. nepalensis* do remarkably well in such situations, especially the first two. *J. Mayne, Bicton, Devon.*

A HALL FOR HORTICULTURE.—It has been my privilege in some way or other to have been associated with horticultural and floricultural societies since 1832 or 1833, when I was employed (as a boy-

Mr. Dean mentions, but they do not apply to the National Chrysanthemum Society; with many of them it would have been more surprising if they had succeeded. *W. H. Divers.*

CALLICARPA PURPUREA.—This old Indian stove-plant was prominent in a collection of decorative, foliage, and flowering-plants, with which Mr. W. Howe, gr. to H. Tate, Esq., Park Hill, Streatham, won the 1st prize at the recent exhibition of the National Chrysanthemum Society, at the Royal Aquarium. Long shoots bearing cymose clusters of deep violet-tinted, glossy berries, were prominent, and being unusual, attracted much attention, many enquiries being made as to the name of the plant. Cuttings made from the shoots put forth in early spring from cut-back plants, strike as readily in a brisk bottom-heat as do those of the *Fuchsia*; and fruiting-plants can be obtained in a season with careful culture. *R. D.*

UNTIMELY BLOSSOMING OF THE WHITE-THORN.—I am sending a few sprays of the White-thorn (May in December), as an instance, among many, of the mildness of the season. The bloom is quite expanded, and young leaves appearing on some trees of the same at this place. The tree from which the sprays were taken is growing quite in the open, facing north [The Glastonbury Thorn. Ed.]. *G. Farmer, Beckford Hall Gardens, Tewkesbury, December 22.*

FRUIT JUDGING.—I do not agree with the remarks made by "Cornubian" in last week's *Gardeners' Chronicle*, p. 12. He says, where ripeness is specified in the schedule, "judges have no choice in the matter," adding, "but the preference for ripeness (even when out of season) is carried to excess in many cases where it is not demanded by the schedule, and where ripeness is a positive defect." Over-ripeness is a defect, but ripeness, i.e., the fruits being fit for table at the time they are being judged, is certainly not a defect. "Cornubian" says: "Time and again I have seen fruits that were ripened out of season placed before others that were in every way of better quality, but not ripe." How could the unripe fruits be "better" in every way than the specimens "ripened out of season" which the judges preferred? Assuming the fruits shown to be of the same variety, equal, or nearly so, in size and shape, the preference undoubtedly should be given to the ripe fruit. "Cornubian" asks, "which is the most valuable dish, say, of Marie Louise, dead ripe in September, or a similar dish at the end of October or in November?" If both lots of fruit are "dead ripe" at the respective dates, one dish is about as valueless as the other. But a dish of well-developed fruits of Marie Louise artificially ripened in September is of more value by reason of its earliness than a dish of the same variety ripened on the shelves in the fruit-room a month or two later. Not only this, the Pears laid between layers of cotton or wool-wool in a shallow box, with the lid tied down, and placed on the trellis over the hot-water pipes in a vinery or Melon-house as the fruit is approaching maturity, will excel in colour those which ripen in the fruit-room; while the flavour, owing to the dry and buoyant atmosphere and warm temperature in which the fruit was ripened, is quite equal or superior. This I can vouch for from many years' experience in the matter. *H. W.*

CYPRIPEDIUM INSIGNE SANDERÆ.—Kindly allow me to reply to the remarks of "T. S." in your last issue. He tells us that part of the Pickering Lodge plant will be exhibited at the Royal Horticultural Society's meeting on January 11, and invites me to point out the difference between it and the true one. I may reasonably infer from this invitation that the variety I questioned has now developed into the true one, so there is little need for me to look at the original form, as I have seen it often enough. If the plant to be shown on this occasion is part of the plant they exhibited at Manchester Chrysanthemum show, in November, 1895, which was the Pickering Lodge plant, and named *insigne Sanderæ*, it will, indeed, be very interesting to learn how it evolved from that variety to the true one. If such is the case, perhaps "T. S." will kindly treat us to a short history of this fine science, as enlightenment on such points is much needed at the present time, seeing that several very curious cases of evolution have recently taken place among the more aristocratic forms of Orchids. I have already disclaimed any knowledge of their collection beyond what they show publicly—the *Cypripedium* in question excepted. *S. S., January 3.*

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The advantages offered to gardeners by this Society were described to the members of "The Beckenham Horticultural Society," at its last meeting by Mr. Burge of Oakwood Gardens. It transpired that few of those present knew much of the Society's work, although living not more than ten miles from the metropolis. Mr. Burge in the course of his remarks, pointed out that the Society consisted entirely of gardeners, and carefully explained the "Balance Sheet,"—the "Benefit Fund," "Benevolent Fund," "Voluntary Convalescent Fund," and the "Management Fund." The statement of accounts of liabilities and assets (the latter amounting to considerably over £11,000) caused some surprise, as did also Mr. Burge's statement that there is actually more money added to his account than he has paid into it. Having been a member for a number of years, his "Rest Fund" had accumulated until the interest amounted to more than the annual working expenses. Members can withdraw "Rest Fund" at the age of seventy years, "Lapsed" members at sixty years. In case of death, the sum passes to the person nominated by the member. *M. Webster, The Gardens, Kelsey Park, Beckenham.* [The ignorance our correspondent alludes to in above note is not due to any lack of sympathy on the part of the Horticultural Press, which has always accorded the business of the Society the publicity it so well deserves. Ed.]

THE PRUNING OF APPLE AND PEAR-TREES.—Mr. Ward, on p. 13, charges me with misrepresentation, and he has in no way substantiated his assertion. I contend that pruning-back leading growths to 5 or 9 inches is a very slow process in making a large fruit-bearing tree; and further, that many varieties of Apples and Pears will make far larger, handsomer, and more fruitful specimens in a shorter time, if left to themselves, than if subjected to such pruning. Then again, can you expect early fruit-bud formation, if these said 5 to 9 inch growths make three to five additional growths next year? In a good healthy young tree the buds should be 1½ to 2 inches from each other (excepting undeveloped ones at the base); therefore, all those buds that would have developed into fruit-buds if longer leading growths were left, have been forced unnaturally into growing shoots. The pruning of "misplaced" shoots back to 2 inches, is far too close for strong growing Apples and Pears, the said 2 inches would only have undeveloped buds, which experience has shown me make growths instead of fruit buds; whereas if they were left a longer length the buds would be more fully developed, and only one (seldom more) would make wood, the buds behind such being fruit-buds. The fore-part can afterwards be pruned back to the said fruit buds. Mr. Ward advises hard pinching in summer. I cannot agree with him, because in light soils it tends to keep the trees longer in growth in autumn when they should be maturing or ripening the growth made. In the case of varieties that fruit on the ends of the shoots, the 2 inch pruning would clear off the greater part of the crop, such, for instance, as the Irish Peach and Yellow logestre. Again, if the 5 to 9 inch system be practised, it will be years before you get a dozen fruits, and many more before you gather a gross. I prefer long growths and fruit—long spurs and fruit, rather than trees dwarfed with 5 and 9 inch pruning. In conclusion, may I be allowed to inform Mr. Ward that a great part of my horticultural education (which I admit is meagre) was learned from the *Gardeners' Chronicle*, and much from his own pen. *J. Kettle.*

COLONIAL NOTES.

TO DESTROY SNAILS.

AMONG the liberal contributions Australia has received from England have been sparrows and shell-snails. It may not be generally known that the latter may be destroyed by spreading a thin circle of Tobacco-dust, 3 to 4 inches wide, around the plants. Naturally those plants the snails most affect would be chosen for the purpose. The snails in crawling over the Tobacco-dust may be found next morning just outside the circle, and in the course of a few days become dried up.

I am aware there may be some difficulty in Britain in obtaining the material, as the Tobacco manufacturers return it all to the excise department

nominal for export but really for destruction. I do not see, however, why it should not be obtainable, as it is in these colonies, after the addition of say a little kerosene or superphosphate of potash, which would render it unusable for consumption.

The only material I have used so far for the purpose has been the fine dust, something like coarse snuff, but I think also the fine-cut Tobacco-stems which are returned to the Department in quite large quantities, might also very effectively be used. It is also in itself a splendid manure. It should be used preferably in dry weather, as its effectiveness is soon destroyed by rain or other watering. *Hugh Dixon, Elizabeth and Park Streets, Sydney, N.S.W.*

BERBERIS VULGARIS.

Your issue of September 11 last, which has just come to hand, contains a paragraph on the subject of Barberry and mildew on Wheat. It seems that in consequence, as it is supposed, of the common Barberry serving as the host-plant of the mildew of corn (*Puccinia graminis*), the Royal Swedish Agricultural Academy in Stockholm, and other authorities, have requested the railway directors in Sweden to grub up all the Barberry bushes within a certain distance of corn-fields. Nurserymen, too, are told to notify in their catalogues that *Berberis vulgaris* should not be planted in the vicinity of arable land. Now, the question arises whether the mildew found on Wheat is the same as the mildew to which the Barberry is subject? This is a matter which very much concerns many districts of New Zealand, as of late years the common Barberry has been planted by millions for hedges. It is admitted to be the best all-round hedge-plant that has been tried in northern districts. But if it is about to prove a nuisance to growers of Wheat, in fostering the development of an injurious parasite, then a great mistake has been made in planting so large an extent of Barberry. The possibility, however, is, that the Swedish authorities have made a blunder in regard to the particular mildew. On referring to Stephens' *Book of the Farm*, I find the following statement about mildew on Wheat, a statement that upsets the common notion existing, that the mildew on Barberry is the same species:—"A notion prevails in England that the Barberry-bush (*Berberis vulgaris*) has the power of causing mildew in Wheat, probably from the well-known circumstance that the Barberry itself is very subject to mildew. But the mildew of Barberry is occasioned by the *Erysiphe berberidis*, whereas the mildew of Wheat arises from a *Puccinia*, and no possibility exists of transforming the one fungus into the other." We have thus two opposite teachings on the subject; and I should be glad to have the opinion of a competent expert as to who is correct—Mr. Stephens or the Swedish authorities; and especially as it is a matter in which the settlers of New Zealand are deeply interested. *William Morgan, Pukekohe, Auckland, New Zealand.* [It has been proved beyond dispute that the wheat-mildew is a stage of the *Uredium* of the Barberry. Ed.]

THE FRUIT TRADE.*

I PURPOSE contrasting the fruit trade at the present day with what it was in the memory of many of us forty or fifty years ago. The chief cause that has led to its development has been railway and steamship communication. Fifty years ago the only supply was home grown, and of limited extent, the carriage from a distance to any of the local centres being difficult and expensive. The importation of foreign fruit, with the exception of Oranges and Nuts, was also on a small scale, irregular and uncertain. Occasionally, a few hundred barrels were sent from America in sailing-vessels by private individuals, and the trade in fresh produce, with the exception of a few Pears grown in Normandy and Brittany, was exceedingly small. The prices that had to be paid for fruit put it out of the reach of all but the well-to-do, except in the months of June, July, August, and September, when our home-fruits were found in all the markets in the immediate vicinity of the centres of production. I am quite safe in saying that during eight months of the year fruit to the multitude was practically an unobtainable luxury, except when Oranges happened to be plentiful. The districts whence Oranges came to this

* Paper read by Mr. M. J. Garcia before the Horticultural Club, on Tuesday, December 14.

market were St. Michaels and Lisbon. They were sent in sailing ships, which were at the mercy of the winds, and it was no uncommon occurrence for the London market to be without Oranges for two or three weeks. I can well remember often seeing a fleet of ten or twelve sailing-vessels moored outside the wharf at London Bridge. Since that time the south of Spain has taken to growing Oranges, and I can call to mind the first few boxes of Valencia that arrived in Covent Garden Market. They were packed and owned by Robt. McAndrew and Co., who were then the great people in the St. Michaels' trade. In the first season certainly not more than 200 cases came to Great Britain, and in contrast with this, I may mention that last year the growth in the province of Valencia alone exceeded 3½ million cases. The cultivation has increased to such an extent that a box of Oranges can now be bought in the months of November, December, and January, at a price not exceeding 6s. f.o.b. Valencia, and throughout the season they are being sold here in Great Britain at as low a price as in the towns of Spain where they are produced. Oranges are now being grown in a new district, the province of Murcia; they promise to surpass in quantity, as they certainly do in quality, those of the province of Valencia. The Canaries also are in the field, and whereas six or seven years ago a supply of 200 or 300 boxes during the season was all that was produced, I hear on good authority that last year 5000 boxes were shipped, and that this year the output is more than double. These Oranges, which are of exceptional quality, will have to compete with those from Jamaica, Florida, and California. Florida Oranges occupy a pre-eminent position both in America and here. The frost some seven years ago nearly killed all the trees, and this will be the first season that there has been any crop to speak of. As regards California, the fruit is cultivated there with the greatest care under the most favourable conditions, and it is only a question of time for it to supplant all the rest grown in America. St. Michaels' Oranges, on the other hand, have deteriorated, so much so, that all the trees have been cut down and Pineapples planted instead. Palestine and Mexico are also now in the field with Oranges, and it is probable that the growth in Jaffa will attain such large proportions as to form a serious opposition to the best fruit that come from either America or Spain. Efforts have been made to introduce Jamaican fruit, but up to the present, with very disastrous results, the loss of one company alone being at least £34,000. The money, however, has not been thrown away, as great experience has been gained, and hopes are yet entertained of the mother country being able to assist in the consumption of the fruit of one of her colonies that has suffered most severely through the cultivation of sugar not being remunerative. As regards Pines, they are in St. Michaels' grown under glass, and are of unexceptional quality and size. The average weight is from 2 lb. to 8 lb. They are nearly all the Smooth-leaved Cayenne variety, and I am quite within the mark when I state that there are brought to London each year between 400,000 and 500,000 Pines. These, on account of their size and quality, have entirely supplanted the English growth. Canada is fully alive to the consumption of foreign fruit in England, and the Canadian Government have organised a department for the development of the trade. Cool chambers have been fitted up in the regular steam-ship lines to London, Liverpool, Bristol, and Glasgow; and the consignments that have arrived this season lead us to hope, now that America is practically closed to British fruit, that we shall be able to assist Canada by being customers for all kinds of her produce. Turning now to—

ENGLISH FRUIT.

the production fifty years ago was very small, except in the months of June, July, August, and September. Hot-house Grapes commenced at about 30s. per lb., and the lowest price, unless in unusual circumstances, was 2s. per lb. The month of November brought us to the end of English hot-house Grapes, and I can well remember when my grandfather, who lived in the Poultry, in Cheapside, had an order for Grapes for the Lord Mayor's dinner, the only person that could supply them was Mr. Crawshaw, of Colney Hatch, and this gentleman used to allow 50 lb. to be cut specially for this purpose. I have myself sold common Lisbon black Grapes in March at 30s. a lb. The only others that were then obtainable were a few from Almeria, and of these the supply was limited, the average quantity being about 30,000 to 40,000 barrels, and the price 20s. to 60s. a barrel. At the present time the average supply of this one variety is about half a million barrels, and they realise from 8s. to 20s. The cultivation of Grapes and Tomatoes under glass is a matter that you are better acquainted with than I am; but if the amount of care given to this particular branch had been devoted to the growth of Apples and Pears in England. I cannot help thinking that the trade in the latter would be much more profitable than it is to-day. French fruit, with the exception of Pears, was almost unknown fifty years ago, but now the demand is so great, that the cultivation in the south, where Cherries and Green Gages are grown, has been increased solely on account of the consumption in Great Britain. The quantity consumed in Great Britain is extraordinary, and although prices may seem dear, the freight in France is so high as almost to preclude anyone, with the exception of the French railway companies, from making a profit. The French Government, which has the monopoly of the railway system, throws all sorts of obstacles in the way of the carriage of fruit by fast French trains; and although these are no quicker than our ordinary luggage trains, the freight is higher than any of our railway companies charge for conveyance of similar goods by express. All fruit that reaches us from the south of France is charged

at the rate of 1½d. to 1¾d. per lb. Chiefly English capital is now used in the development of this trade, and the largest firm in France, when desirous of turning their business into a limited liability company, had to come to England to obtain the capital necessary. I have left to the last the consideration of the enormous strides made in the

AMERICAN APPLE TRADE.

The result to the farmers in America always depends on the crop we have in the United Kingdom, and every year they are as anxious to obtain information as to the outlook here as we are to learn of the prospects on the other side. The business, which commenced with the shipment of a few hundred barrels fifty years ago, has now assumed gigantic proportions. In 1880 there were about 1,250,000 barrels shipped from America; for the next eight years the number varied from 81,000 to 800,000; while in 1895, when the crop was beyond all precedent, over 3,000,000 barrels were sent to Great Britain. This season the crop in general is poor throughout America. In the States the carriage of fruit is evidently much less expensive than here. The bulk that is now arriving is being shipped 2000 miles west of New York, at a cost per barrel that certainly does not exceed 15s. to 16s., everything included. If England is to compete with foreign countries, she will have to adopt methods similar to those in use in the country which has made a specialty of the growth of produce for foreign markets. California has certainly set an example as regards trouble taken in the growth of fruit, and in the development of the trade, and there are one or two facts which have come to my knowledge from reliable people which I may venture to place before you. Fruit-growing in America is a very important business, and the Government spares no pains in acquiring all possible information on the subject, distributing it in pamphlet form broadcast to all those who are directly or indirectly interested in agriculture. Fruit trees in California, as well as throughout America, are planted at a distance of 24 feet apart, and it has been ascertained from many years' experience that the trees bear more fruit and of better quality in this way than if planted closer. Except during the first few years, no grass or other vegetation is allowed to grow between the trees, and all that Nature and science can do is brought to bear on their development. Some Californian gentlemen have devoted themselves to the culture of fruit in other countries, and one of the most influential has established himself in Cape Colony, 250,000 trees having been sent there four years ago, and this year some of the first produce will reach England. They have decided to send not only to their own, but also to the English markets, and they hope that in a few years, Pears, Plums, and Apples, equal to the best grown in California, will be shipped to arrive here during the months of April, May, and June. On one farm alone 90,000 fruit trees were planted last year.

I certainly think that, as regards the production of Apples in England, the nurserymen are to some extent to blame for advocating the growth of new sorts, for, as I have already said, the old kinds of good eating quality sell well, while, on the other hand, many of the new varieties are difficult to dispose of, and less profitable. The same system that exists in America should be followed here, namely, particular attention should be paid to the cultivation of well known varieties, so that dealers here will be able during the season to depend on a good supply of particular sorts, such as King of the Pippins, Blenheim's, Cox's Orange Pippin, and others equally appreciated by the British public. Although the production of English soft fruit has increased in proportion to the population, foreign has not caused it to depreciate in value, as thirty to forty years ago, Cherries, Plums, Currants, &c., in plentiful seasons were sold at lower prices than under similar conditions at the present day. Thirty-five years since Bigarreau Cherries were sold as low as 5s. to 7s. per bushel of 48 lb., a figure hardly ever experienced in the present day; while 2d. per lb. for Black Currants was considered a high price.

AMERICAN NOTES.

FERNS.

COMMERCIALLY Ferns are used as much in the United States as in any part of Europe; but "Fern-fanciers" or "cranks," as lovers of any special hobby are called in this country, are "few and far between." But in the markets Ferns are a prominent feature, being extensively used all over the States. *Adiantum Farleyense* is highly thought of, and is grown in astonishingly large quantities. The late firm of Pitcher & Manda alone had nine houses entirely devoted to them, containing from 14,000 to 15,000 plants, in sizes from 2 inch or thumbs, up to 12-inch pans, forming a display of much beauty, and one not to be soon forgotten. The plants are sold to retailers all over the States, but chiefly in New York, Washington, Baltimore, and Boston—New York being by far the largest buyer. *A. Farleyense* is a surprisingly good shipper, better than the majority of plants. We once had occasion to despatch a case of

plants to Denver, Colorado, which was delayed on the road; and when it did finally reach its destination, the sole survivors were the *A. Farleyense*.

About the middle of the month of August, all double-crowned and unsaleable plants are divided, the fronds and roots being cut off, leaving the crown quite clean, and breaking or cutting them into pieces about the size of a large Pea, preserving a single eye, such always making the best plants. These are sown thickly on chopped peat, and covered lightly with the same. Within five weeks they are up 3 or more inches, and are ready for potting. This requires more care than at any other stage. The soil used consists of loam, leaf-mould, and sand, equal parts, and at the next shift they go into 3-inch pots, and this time rotten manure is mixed with the compost. After this potting, the hose is used in applying water, liquid cow-manure being applied by the same means by the aid of the "Kinney Pump."

The summer is the most trying time of the year for *A. Farleyense* on account of the dry heat, but this is overcome by throwing plenty of water about, especially overhead. English gardeners would, no doubt, consider this a very dangerous proceeding, but we find the plants grow luxuriantly under it. Plants started in August are ready for sale in 6-inch and 7-inch pots by November of the next year. For large specimens we put three or four 5-inch in a 12-inch pan. The prices are, 5-inch, 75 c., about 3s.; 6 inch, 125 c., or 5s.; and large 12-inch pans, 3 dols. 50 c., or 14s., there not being much sale for sizes above that. *A. cuneatum* is also extensively grown, some firms handling many thousands.

Next in importance are what are termed small, or, mixed Ferns, these being used for making up Fern dishes for table decoration, only the hardier varieties being used. *Aspidium amabile*, *Lastrea opaca*, *L. lepidota*, *L. aristata* var., *Pteris chinensis palmata*, *P. Mayi*, *P. cretica albo lineata*, and *Blechnum occidentale* being among the most used. These are raised in countless thousands, and sell for thirty to forty dollars per 1000, or three and four cents each. One Fern I must not leave out, and one that is grown largely, is what is known as the Boston Fern, which is the drooping variety of *Nephrolepis cultrata*, called here *N. c. Bostoniensis*, after the city of Boston, where it first came into prominence. *Alfred T. Benyard, Waverley, Mass., U.S.A.*

SOCIETY.

SUNDERLAND AND DISTRICT GARDENERS' ASSOCIATION.

DECEMBER 29.—The above flourishing society held their seventh Annual Dinner at the Palatine Hotel, when upwards of sixty persons were present, the president, Councillor W. M. Koche, in the chair.

The membership, said Dr. Randall, increased yearly, and he noted the fulfilment of the hope expressed last year, that there should be an interchange of visits and papers between the Sunderland Society and that of Newcastle-on-Tyne; and he thought this might possibly be extended to other neighbouring towns.

Mr. T. W. Bolam, who has taken an active interest in the work of the society since its formation, has been unanimously elected chairman—six times out of the seven years of its existence.

CATALOGUES RECEIVED.

KEYNES, WILLIAMS & Co., Salisbury—Cactus Dahlias.
ROBE. VEITCH & SON, 51, High Street, Exeter—Flower and Vegetable Seeds.
KENT & BRYDON, Darlington—Garden Seeds.
G. P. DIXON & SONS, Hull—Garden Seeds.
DICKSONS LTD., Chester—Seeds, &c.
E. WEBB & SONS, Wordsley, Stourbridge—Seeds and Sundries.
BROWN & WILSON, 10, Market Place, Manchester—Seeds.
WM. SAMSON & CO., Kilmarnock—Seeds.
JAS. DICKSON & SONS, 32, Hanover Street, Edinburgh—Seeds.
LOUIS VAN HOUTTE PÈRE, Ghent, Belgium—Seeds, Begonias, Gloxinias, Caladiums, and other Plants.
WM. PAUL & SONS, Waltham Cross, Herts—Seeds and Bulbs for Spring Planting, &c.
S. F. OSSETT, The Nurseries, Ossett, Yorks—Chrysanthemums.
JOHN LAING & SONS, Stanstead Nurseries, Forest Hill, London, S.E.—Vegetable and Flower Seeds, including Begonia Novelties and Sundries.



[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.		
	Above (+) or below (-) the Mean for the week ending January 1.	ACCUMULATED.				More (+) or less (-) than Mean for the Week.	No. of Rainy Days since January 3, 1897.	Total Fall since Jan. 3, 1897.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 3, 1897.
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since January 3, 1897.	Below 42° difference from Mean since January 3, 1897.					
0	5 +	21	10	+ 209	- 9	13 +	231	46.4	4	23
1	5 +	23	14	+ 52	- 0	7 +	204	29.9	6	30
2	6 +	30	14	+ 129	- 120	3	- 183	24.2	9	32
3	4 +	26	11	+ 152	- 149	0	aver 174	23.1	12	36
4	6 +	30	15	+ 93	- 153	2 +	173	27.4	14	34
5	6 +	28	2	+ 274	- 244	5 +	168	26.8	7	38
6	6 +	27	3	+ 149	- 85	21 +	222	47.4	8	31
7	6 +	33	5	+ 211	- 154	2 +	199	37.0	14	34
8	5 +	32	1	+ 283	- 173	11 +	206	44.3	19	37
9	4 +	24	8	+ 97	- 37	12 +	234	40.9	19	29
10	5 +	33	1	+ 262	- 135	17 +	219	47.8	22	33
*	4 +	47	0	+ 435	- 99	7 +	318	36.6	22	41

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending January 1, is furnished from the Meteorological Office:—

"The weather was very unsettled, with frequent rain in nearly all parts of the Kingdom. Over Scotland and in most of the western districts the rainfall was very heavy. Thunder and lightning were experienced at some of the western stations on Thursday.

"The temperature was much above the mean, the excess ranging from 4° in 'Ireland, N. and the Channel Islands,' to 6° in 'Scotland, W.,' and in almost all the English districts. The highest of the maxima were registered at the commencement of the week in the western and northern districts, and on December 29 at most of the English stations they ranged from 60° in 'England, N.W. (at Llandudno), and 58° in 'Ireland, S.,' to 54° in 'Scotland, N.W. and Ireland, N.,' and several parts of England. The lowest of the minima, were recorded on December 26 in England, but on rather irregular dates in Ireland and Scotland; they varied from 22° in 'England, E.,' 23° in the 'Midland Counties and England, S.,' and 24° in 'England, N.E. and S.W.,' to 32° in 'Scotland, N.,' and to 36° in the 'Channel Islands.'

"The rainfall was less than the mean in 'England, N.E., and only just equal to it in 'England, E.' in all other districts, however, there was an excess, that in 'Scotland, Ireland, the S.W. and S. of England, and the Channel Islands' being very great. The largest amounts registered at any of the individual stations were 6.0 inches at Killarney, 5.48 inches at Glenlee, 5.18 inches at Fort William, 4.36 inches at Landale, and 4.08 inches at Valencia.

"The bright sunshine was less than the normal over the Kingdom as a whole, but slightly exceeded it in 'Ireland, N. and England, N.W.' The percentage of the possible duration ranged from 22 in 'Ireland, S. and the Channel Islands,' to 7 in 'England, S.,' 6 in 'Scotland, E.,' and 4 in 'Scotland, N.'"

GARDENING APPOINTMENTS.

Mr. GEO. STEWART, for the last three years Foreman in the Gardens, Alloa House, Alloa, N.B., as Gardener to Capt. W. H. FIFE, Langton Hall, Northallerton, Yorkshire.
Mr. GEORGE MURRAY, for the last fifteen years Gardener to F. H. BOOTH, Esq., to P. R. WAND, Esq., 14, Springbank, Manningham, Bradford.
Mr. LEWIS CHASTNEY, late Foreman at Shetesham Park Gardens, Norfolk, as Gardener to Mrs. A. A. HARRISON, The Shrubbery, Southtown, Great Yarmouth.

NOTICES TO CORRESPONDENTS.

ARUM LILIES DISFIGURED: *Unadorned.* The injury is due to some local circumstance in the cultivation. There is no fungus or other disease. In such a warm atmosphere, similar effects may follow an exceeding fluctuating temperature, or cutting-draught. Fumes from the stovehold may be suspected.

CATILEYAS: *Veritas.* In Cattleyas the flower sheath, with, of course, a flower-spike enveloped in it, rises from the top of the pseudo-bulb or club-like stem. A flower-spike may contain from eight to thirty flowers. If new arrivals possess immature growths (pseudo-bulbs) or flower-sheaths, made perhaps during transit, these may remain if not injured.

DENDROBIUMS: *Veritas.* Most of the species, being natives of the tropics, would not succeed in the Cattleya-house all the year round, and nearly all of them would require a greater degree of heat in their growing period, and whilst maturing their growths. *D. nobile*, *D. bigibbum*, *D. superbiens*, *D. Goldiei*, and *D. Phalenopsis*, and most of the Australian species will succeed under moderately warm treatment. *D. speciosum* and *D. s. Hilli* succeed under a like kind of cultivation.

ENGAGEMENT: *A. F.* If you possess a written engagement you may be able to obtain compensation; and failing this, you might get a County Court judgment in your favour for one month's wages and perquisites, and travelling expenses. Why not consult a lawyer, it might be cheaper in the end.

FIG-TREE: *D. J.* All fruits larger than small Peas should have been taken off, as they will come to nothing. You may begin to force the tree now or later, beginning very gradually to increase the warmth. Study past and future Calendars in this journal.

GREEN PEAS: *X.* Probably the failure arose from the bladder or cover not being sufficiently tight, and the bottles not being sufficiently filled so as to leave as little interspace as possible between the Peas and the cork.

HOME-MADE GRAFTING-WAX: *Flammula.* Take 1 lb. of beeswax, dissolve it in a glue-pot, and gradually add mutton-suet or tallow, till it loses as much of its stickiness as will permit it to be readily manipulated, and yet get fairly hard on drying. When using wax of this kind, it should be kept in a plastic state by means of a small spirit-lamp placed beneath the vessel containing it. It is handier than clay, a mere coat of it being as effective in excluding moisture and air as a large quantity of the former.

HYGROMETER: *C. Whitfield King.*—The hygrometer mentioned on p. 430, which is in use at Burford, consists of two fine carefully graduated tubes, containing mercury, the bulb of one being covered with thin muslin, and round the neck the muslin should be twisted loosely, or tied in a loose knot, a conducting thread of lamp-wick, or some similar material, which passes into a vessel containing water placed at about 3 inches below the bulb, and a little on one side of it, so that evaporation from the water may not affect the reading of the dry bulb by its too close proximity. The hygrometer just described is less complicated and expensive than those in which the dew-point is ascertained by the use of ether, &c. The instrument is useful in all the Orchid-houses, especially during the winter months and dull damp weather. When the readings on the scales of the two thermometers are equal, that is the saturation point. During the middle hours of the day, from 6° to 8° of evaporation should be allowed. At other times, about 2° for the *Phalenopsis*-house, and 1° for the cool-house, saturation point never being maintained. *W. H. W.*

NAMES OF FRUITS: *C. P.* Apple Dumelow's Seedling (Wellington), one of the very best long-keeping kitchen varieties.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*W. T.* 1, *Retinospora pisifera*; 2, probably a form of *Cupressus Lawsoni*; 3, *Cupressus nootkatensis*; 4, *Thuja occidentalis*, var.; 5 and 6, variety of *Thuja orientalis*; 7, *Retinospora pisifera*; 8, *Juniperus* not recognised; 9, *Juniperus einensis*; 10, *Crataegus Pyracantha*.—*H. P.* Iris foetidissima, common as a wild plant in some places in Great Britain.—*L. B.* The Orchid is *Lelia autumnalis*;

the other plant *Cestrum* (*Habrothamnus*) *fasciculatum*.—*G. H. W. L.* 1, *Aralia Guilfoylei*; 2, *Begonia nitida rosea*; 3, *Croton angustifolius*; 4, *Croton variegatus*; 5, *Croton irregularis*; 6, *Croton Evansianus*.—*J. P. K.* *Maxillaria punctata*.—*W. O. W.* 1, *Pteris serrulata*, crested-form; 2, *Garrya elliptica*; 3, *Cestrum fasciculatum*; 4, *Phyllocactus* sp.

SHRUBS AND TREES AND RABBITS: *A. N. C.* We know of but few plants that rabbits will not bark when driven to do so by hunger. The Yew, Savin, Red Cedar, *Thuja borealis*, Butchers' Broom, Ivy, Periwinkle, *Berberis aquifolia*, Gorse, Privet, *Garrya elliptica* they will rarely touch.

STOCK FOR CLEMATIS GRAFTS: *Flammula.* The stock commonly employed is *C. vitalba* (Traveler's Joy), the seed of which can be purchased at a low rate, or gathered from the hedgerows in southern shires, where the soil is chalky. Clay or grafting-wax are used, and but little of either, the point of union coming below the ground-level.

VANDA MASSAIANA: *H. J. P., Poggio Gherardo.* We thank you for the drawing, and also for your interesting letter on the subject. We have no knowledge of "Vanda Massaiana," and we can find no record of it. The drawing gives a very fair representation of *Stauroplexis lissochiloides* (*Vanda Batemanni*); but if your plant is different from that species in the habit of its growth, it may not be that species. The peculiarity of the basal flower being different in colour, and in other particulars, is a common feature in some of the species of *Stauroplexis*, *Arachnanthe*, *Grammatophyllum*, &c. Indeed, even in some of the small-growing Orchids, usually designated "botanical," such as *Bulbophyllum hirtum*, *B. auricomum*, &c., the same peculiarity is seen. We will endeavour to get information about *Vanda Massaiana*, and communicate.

VIOLET PLANTS IN FRAME DAMPING OFF: *D. J.* Your plants damp off because the frame is insufficiently ventilated. The sea air has nothing to do with it, and is favourable rather than otherwise, as being milder than far inland, rendering covering up the frame with litter, &c., not so necessary during the winter, and the opening of the frame at the back in order to afford air from 10 A.M. till 2 or 3 P.M. safe almost daily. Give as much air as possible with safety; apply no artificial heat, but keep out frost by means of thick linings of straw litter built up to the top of the frame, and always keep these at that height; press the soil firmly round each plant, cover the soil with a layer of cocoa-nut fibre refuse, or half decayed leaves; and if the tops of the plants are further than 6 inches from the lights sink the frame, if you can, in order to bring them up to that distance from the glass.

WASH FOR THE STEMS OF FRUIT TREES: *J. B. & Sons.* Clay, cow-dung, and lime, mixed with soap-suds to the consistency of thick paint; when well mixed add half-pint of spirits of tar to 3 gal. Let the stuff be applied twice during the winter. It need not be applied higher up the stem than 4 feet, except in districts where the snowfall is unusually heavy.

COMMUNICATIONS RECEIVED.—Thos. Frost & Co.—S. P.—H. H. D'O.—T. J. C.—B. W. (thanks).—W. J. M.—M. Melbourne.—G. H.—W. N. B.—H. R.—W. W.—J. B.—G. F.—J. Burt Davy, California.—A. H. K.—E. V. B.—Richard Edwards.—D. Jenkins.—A. Fairall.—R. T. H., Killiney (too late for insertion in Almanac).—Prof. Sargent, Cambridge, U.S.A.; L. B., New York.—G. S. B.—W. B.—J. C. M., St. Lucia.—C. de B., Antwerp.—G. H.—R. H. P.—Ed. Pharm. Journal, with thanks.—W. M.—W. N. B.—P. M. Murray (next week).—C. M. J.—G. H.—T. K. & Co. Ernest Scapellhorn (the subject was fully written up to about a year ago).—G. J.—H. A. W.—H. J. M.—T. Campbell (shortly).—G. W.—J. M., Biston.—H. Roberts.—Emigrant's Information Office.—A. C. F.—H. W. W.—E. C.—McDonnell.

PHOTOGRAPHS, SPECIMENS, ETC., RECEIVED.—H. J. R. Florence.—Thelwall Heys.—J. B. D.

CONTINUED LARGE INCREASE in the CIRCULATION of the "GARDENERS' CHRONICLE."

Important to Advertisers.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED, and that it continues to increase weekly.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES OF GARDENERS and GARDEN-LOVERS at home, that it has a specially large FOREIGN and COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.

(For Markets see p. xlii.)



THE

Gardeners' Chronicle.

SATURDAY, JANUARY 15, 1898.

A LITTLE CORNISH GARDEN.

THE garden whose chronicle I both keep and partially make is no realisation of Baconian ideal. Its "contents" fall very, very far short of "Thirty acres of ground. . . . Four acres being assigned to the greene, six to the heath, foure and foure to either side, and twelve to the maine garden." Quite otherwise, my little plot is materially but a small piece of ground enclosed by low walls on all sides; and, when I took possession of it two years ago, a more hopeless, irregular, poverty-struck patch, covered as it was with bindweed, couch-grass and other weeds, it would tax the utmost patience and ingenuity to discover.

My predecessor took no interest in gardening, and considered the possibilities of the situation not such as to merit much expenditure of labour or money. And truly it did look a hopeless task to extract much beauty from it. But I thought of Virgil's contented old Corycian, who acquired possession of a few acres of waste land which was not worth ploughing, of no value for pasturage, and quite useless for vine-growing; yet by steady perseverance and hopefulness this genuine old gardener made things grow everywhere, and was enabled to cover his suppers with dainties of his own growing. He was always able to pick the earliest rose in spring and the first autumn fruit; and, even when gloomy winter cracked the ground with hard frosts, he still had flowers in sheltered nooks with which to cheer himself and nourish his bees.

Unfortunately, I had come into a few acres of neglected land, and I saw that, if I were to maintain my interest in gardening, and show myself to be a worthy descendant of the veteran of the Georgics, I must make the best of what I had until such time as Fate should give me the garden which my mind has ever imaged.

So, first of all, I thoroughly broke up the ground, cleaned it of weeds as far as possible, and incorporated a heavy dressing of manure. I saw that it was useless to hope that the weeds were conquered, and so I decided to grow nothing for a season but vegetable crops, which would necessitate the ground being dug and cleaned a few more times. I took time by the forelock, however, and planted a number of pyramidal fruit-trees in the autumn. These have now developed, and will, I hope, yield me a good crop next year. Continual forking, digging, manuring, and weeding, have now made the soil such as will produce fruit and flowers. Paths have been made, and borders have naturally been produced; seeds have been

sown, and bulbs planted; a small greenhouse and frame have been built, and the little waste-plot looks like an adjunct to a human dwelling.

As the garden is entirely overlooked by every passing train—the railway arching over the valley on whose slope my garden lies—I have planted some standard fruit and other trees to cut off that view as far as may be. You see, I am English, and like to ply my hobby in privacy. For I hold that a garden is a place whither one should be able to retire from the *profanum vulgus*—like a private study, like even silence itself, in that we may thence defy the outside world. This, then, is an aim which the true gardener should bear ever in mind, for no garden can afford a substitute for the beauties of unsullied Nature. The grandeur and glory of the forest the hill and the plain are quite other than anything which the garden can give. This is as certain as the truth that no library can serve as a substitute for the world of men.

The profound emotion that we term melancholy, which grand scenery produces, is absent from the garden effect. Gardening, on the other hand, is calculated to breed in its devotees a feeling of quiet content, mainly—we may suppose—because it is constantly telling the gardener of his power in obtaining desired and beautiful results. Yet, full as much as angling, gardening is truly "the contemplative man's recreation." Raising giant flowers for competition at flower-shows is scarcely the kind of thing I mean. The gardening which attracts me is on a footing with old Isaac Walton's fishing. I like to be my own gardener, and I take an interest in my plants as individual living things, as well as bits of beautiful colour and form. I like to see a plant grow and develop, to study its distinctive features and their causes, and to read about it and so learn what others have observed. A small, convenient and healthy house, a large and well-situated garden, a good library gradually accumulated, a small competency—and what more in the way of physical possessions can the contemplative man require?

Hardy plants alone possess much interest for me. Plants in pots savour too much of the pet-bird idea. Keeping a loose domestic dog or cat is one thing, but keeping a lark or even a canary is quite another. Besides, I like my plants to establish relations with definite spots in the garden. It is pleasant to feel that the fading Crocuses will come again in the same spot next year; that the Snowdrops may be expected to brighten the base of the Pear-tree each spring with increasing effect. Therefore I have planted my garden with Roses in great variety of the best kinds (not Hybrid Perpetuals and Teas only, but also the sweet old summer Roses, and many of the single species such as *alpina*, *acicularis* and *bracteata*), with all kinds of Daffodils, Narcissi, Irises, Anemones, Primulas, Cyclamens, Crocuses, Tulips, Gladiolus, Snowdrops, Aconites, Colchicums, Columbines, Campanulas, and the like. I hope to have flowers out-of-doors the year through, except perhaps in the very heart of winter. Yet I am inclined to think that December and January are among the gardener's happiest months. It is then that he is enabled to practice "*L'Art de se rendre heureux par les Songes*," as the title of an old book runs. For, after all, however successful may be our gardening, realisation is realisation, and can only give the joys which appertain to itself; whereas, in the apparently dull months of winter, we have all the pleasures which expectation and the conception of infinite possibilities

can give. Although, when I drag my friend into my garden, he reports that he can see little but bare earth, and leafless trees and shrubs, I can scarcely understand it, for I can see here a mass of glowing *Escholtzia* in every shade of orange, white, and yellow, there a clump of Daffodils in bloom, here a bed of Tulips, there a galaxy of beautiful Roses. I see all the flowers of every month, and they are almost as real to me as they will be when they are visible to all. *Harry Roberts.*

(To be continued.)

ORCHID NOTES AND GLEANINGS.

LÆLIO-CATTLEYA × LUCY INGRAM
(*purpurata* ♀, *Perrini* ♂).

EQUAL in beauty to a good *Lælia purpurata*, and possessing the advantage of flowering in winter, this fine hybrid gives a good example of the useful work done by the raiser, Mr. T. W. Bond, gardener to C. L. N. Ingram, Esq., Elstead House, Godalming, who has succeeded in obtaining a large number of fine *Lælio-Cattleyas* and other showy hybrids. It was first shown at the meeting of the Royal Horticultural Society on January 12, 1897, receiving an Award of Merit. The plant is again in bloom, and shows increased vigour. Another plant has also bloomed, which is larger than the original insize, and slightly darker in colour. The flower measures 7 inches across the petals, and therefore equals a good *L. purpurata*. It also approaches that species in the shape of the bloom, though the unmistakable trait of *L. Perrini*, as seen in the peculiar form of the front part of the lip, is very evident. The sepals and petals are white, in the lighter variety slightly, and in the darker more decidedly, tinged with lilac. The base of the lip in both cases is blush-white, veined with purple in the interior; the front and edges of the side-lobes being of a rich violet-purple colour. *James O'Brien.*

LÆLIA AUTUMNALIS VARIETIES.

Flowers sent from various correspondents prove the extraordinary variation which exists amongst plants of this beautiful winter-flowering species. There exist undoubtedly two or three distinct types, each with its set of varieties, which are derived from different localities in Mexico. First, there is the oldest type, which was quite eclipsed by the larger and more richly-coloured *L. autumnalis atropurpurea*, introduced for the first time by Messrs. Backhouse of York in 1879; and later by Messrs. F. Sander & Co. This type has the richer colours, and shows the least variation. Some fine flowers of *L. a. atropurpurea* have been received from Mr. J. Cypher of Cheltenham, and the only apparent variation, a blush-white form of it from Mrs. Ida Brandt of Zurich. The third distinct type is tolerably abundant in gardens, and most of the white and blush-white flowered forms belong to this type, the deeper-coloured ones not being comparable to *L. a. atropurpurea*, although they are useful as flowering in the winter. The best pure white form comes from G. F. Moore, Esq., Chardwar, Bourton-on-the-Water. The flower is likewise larger and better than other white varieties which we have observed. Two distinct forms of this class are sent by Mr. W. Gould, Rose Bank, Hayfield, near Stockport. Both belong to the narrow-petalled class, the one with a white base to the lip and other segments, the outer halves of which are rose-coloured; the other with clear white lip, the front lobe of which and the sepals and petals are bright light-purple. Another flower sent by Captain Holford, in its broad segments and broad front lobe to the lip, very closely resembles the fine *L. a. venusta* of Messrs. Backhouse.

LÆLIA ANCEPS PROTHEROEANA.

A few years ago there appeared a very brilliantly-coloured form of *Lælia anceps*, which was named in honour of Mr. W. H. Protheroe, of the well-known firm of auctioneers of Cheapside. Its flowers are of

fine size, of much substance, and of a warm, glowing colour. A fine flower of it is sent by James Davidson, Esq., Semerville, Dumfries. The sepals and petals are of a bright purplish-rose colour; the broad labellum yellow at the base, with dark purple lines running on each side of the orange-coloured central keels. The front lobe of the lip and the conspicuous sides of the basal lobes are of a brilliant ruby-crimson, which appears all the brighter by contrast with the small white area in front of the crest.

CALANTHE × VEITCHI SPLENDENS AND OTHER PLANTS.

A grand inflorescence of over forty brilliant carmine-rose flowers is sent by Mr. A. Chapman, gr. to Captain Holford, Westonbirt, Tetbury, and it is specially noteworthy on account of the history attached to it. The plant was selected from some unflowered seedlings which the late Mr. James Veitch let the late Robert Stayner Holford have many years ago, which have supplied the stock from which the fine specimens seen every winter at Westonbirt have been raised. Two fine varieties of *Lælia anceps* and *L. autumnalis*, a handsome form of *Dendrobium Phalenopsis delicatum*, and a superb large white *Odontoglossum crispum* are also included.

ORCHID PRICES.

According to the *Semaine Horticole*, the highest price for an *Odontoglossum* yet given is 12,000 francs (£480), for *Odontoglossum crispum* var. *Luciani*; 7500 francs (£300) for *O. crispum* var. *Lindeni*; 5000 francs (£200) for *O. crispum* *Moertebeekense*.

ORCHID PORTRAITS.

BOLLEA SCHRODERIANA, Wiener Illustrirte Garten-Zeitung, January.

CATTLEYA GRANULOSA, Lindl., *Cogniaux*, Dict. Icon. Orchid., Cattleya, t. 14.

CATTLEYA LEOPOLDI, Versch., *Cogniaux*, Dict. Icon. Orchid., Cattleya, t. 15.

CATTLEYA PARTHENIA ×, Bleu, from *C. caluminata* by pollen of *C. Mossiae*, *Cogniaux*, Dict. Icon. Orchid., Cattleya, t. 4. *C. caluminata* is itself a hybrid out of *C. intermedia* by pollen of *C. Aclandiae*.

CYPRIPEDIUM BELLATULUM, Rehb. f., *Cogniaux*, Dict. Icon. Orchid., *Cypripedium*, t. 9.

CYPRIPEDIUM YOUNGIANUM ×, Rolfe, a hybrid from *superbiens* by pollen of *C. Roehelini*, *Cogniaux*, Dict. Icon. Orchid., *Cypripedium* hyb., t. 10.

LÆLIA GLAUCA, Benth., *Cogniaux*, Dict. Icon. Orchid., Lælia, t. 12.

MILTONIA CANDIDA, Lindley, *Cogniaux*, Dict. Icon. Orchid., Miltonia, t. 5.

ODONTOGLOSSUM SCHLIEPERIANUM, Rehb. f., *Cogniaux*, Dict. Icon. Orchid., *Odontoglossum*, t. 12.

ODONTOGLOSSUM WILCKEANUM × var. *albens*, *Cogniaux*, Dict. Icon. Orchid., *Odontoglossum* hyb., t. 2A.

ONCIDIUM PULVINATUM, Lindley, *Cogniaux*, Dict. Icon. Orchid., *Oncidium*, t. 10.

VANDA CERULEA, Griffith, *Cogniaux*, Dict. Icon. Orchid., Vanda, t. 5.

VANDA TRICOLOR, Lindley, *Cogniaux*, Dict. Icon. Orchid., Vanda, t. 6.

WARSCWICZELLA COCHLEARIS, Rehb. f., *Cogniaux*, Dict. Icon. Orchid., t. 1.

COLCHICUM CILICICUM.

According to Boissier this is synonymous with *C. byzantinum*; but Mr. Siehe, at Mersina, who found it in large quantities, writes to me, that it is quite a different species. The colour of the flowers is a rich rose, somewhat tessellate. Mr. Siehe writes, that strong bulbs produce as many as twenty-five flowers, which are of the largest and broadest of the whole genus; but the flowers may remain in a fresh state without water for a period of five or six days—so this species will be one of the best for decorative purposes. Our illustration (fig. 12) was taken from a photograph sent by Mr. Siehe; it shows a medium-sized plant of half the natural size. *U. Dammer*.

PLANTS AT LA MORTOLA.

COMMENDATORE HANBURY sends a list of over 400 species of plants in flower at La Mortola in the open border on New Year's Day. He adds that thus far there has been no frost, but the nights are cold, and large quantities of snow are visible on the maritime Alps.

The past year has been a very bad one for the peasants and small cultivators in this district; the

Olive crop was a total failure, and although the vintage was good near the coast, the ravages of the phylloxera were disastrous in the higher lands.

The price of Lemons is so low that their culture is unremunerative; while the new industry of flower-growing seems in great danger of being overdone, those engaged in it complaining loudly of not being able to effect sales, till colder weather coupled with the increased demand for Christmas improved the situation.

Lastly, the Government has chosen this particularly unpropitious moment for increasing in the most ruthless and arbitrary manner the valuations on which the income-tax (*ricchezza mobile*) is based, until many hard-working and honest people are almost in despair.

Abelia chinensis
Abelia affra
Abrus precatorius
Abutilon Darwini
" *indicum*
" *megapotanicum*
" *striatum*
Acacia microrhiza
" *nerifolia*
" *obliqua*
" *retinodes*
" *saligna*
Achania mollis
Aeonium arborescens
Agathaea celestis
Agave geminiflora
" *scolymus*
" *yuccaefolia*
Ageratum conyzoides
Albizia lophantha
Aloe arborescens
" *ciliaris*
" *purpurascens*
" *Schweinfurthii*
Alyssum argenteum
Andropogon pubescens
Anthriscus vulgaris
Antirrhinum majus
Aponogeton distachyum
Aralia papyrifera
" *Sieboldii*
Arbutus Andrachne
" *Unedo*
Arctostaphylos arborescens
Arisarum vulgare
Aristolochia sempervirens
Azalea indica
Banksia australis (?)
" *marcescens*
" *marginata*
Begonia argyrostigma
" *lagifolia*
" *fuchsoides*
" *lyncheana*
" *macrophylla*
" *manicata*
" *metallica*
" *Rex*
" *ricinifolia*
" *sempervirens*
" *sempervirens* × *Schmidt-*
" *iana*
" *Weltonensis*
" *speciosa* (?)
Bellis sylvestris
Berberis asiatica
" *glanca*
Bidens ferulifolia
Bignonia jasminoides
Borago officinalis
Boucardia Gussoneana
Bougainvillea glabra
" var. *Sanderiana*
" *spectabilis*
Bouvardia leiantha
Buddleia americana
" *auriculata*
" *madagascariensis*
Caesalpinia echinata
" *sepiaria* (*Biancaea scandens*)
Calandula aegyptiaca
" *arvensis*
Callitris quadrivalvis
Campanula rapunculoides
" *pyramidalis*
Canarina campanulata
Canna indica
Cantua dependens
Cassia coquimbensis
" *tomentosa*
Casuarina equisetifolia
" *stricta*
Catha edulis
Centauria cyanus
Centranthus ruber
Cestrum aurantiacum
" *elegans*
" *Parqui*
" *tuberosum*
" *vespertinum*
" *Warscewiczii*
" *hybr. mortolense*
Cheiranthus Cheiri
" *mutabilis*
Chimonanthus fragrans
Chlora perfoliata
Chrysanthemum frutescens
" *gracile*
Cistus crispus

Helleborus niger
Hermannia candelans
Heteromorpha arborescens
Hexacentris coccinea
Hyacinthus romanus
Iberis (gibraltarica) sempervirens
Iris alata
" *unguicularis*
" *alba*
Jasminum fruticans
" *grandiflorum*
" *nudiflorum*
" *officinale*
" *revolutum*
" *Sambac*
Jochroma coccinea
Justicia adhadota
Kalanchoe marmorata
" *rotundifolia*
" *thyrsiflora*
Kleinia articulata
" *ficoides*
" *pteroneura*
Lachepalia pendula
Lantana Camara
" *nivea*
" *Sellowiana*
Lardizabala biternata
Lasiandra macrantha
Laurus nobilis
Lavandula pubescens
Leonitis Leonurus
Leptodermis lanceolata
Libonia floribunda
" *penrhosensis* ×
Linum africanum
" *trigynum*
Lippia chamaedrifolia
Lobelia Erinus
Lonicera Periclymenum
Lopezia miniata
Malva crispa
" *Malvastrum linense*
Mammillaria gladiata
Mathiola incana
Manrandia semperflorens
Melastoma Trimenianum
Mercurialis annua
Mesembryanthemum barbatum
" *cordifolium*
" *cebinatum*
" *felinum*
" *linguiforme*
" *rhomboidem*
" *rhomboides*
" *spectabile*
Mina lobata
Monnina obtusifolia
Moricandia arvensis
Muhlenbeckia complexa
Narcissus papyraceus
" *italicus*
Nicotiana glauca
" *longiflora*
Olea undulata
Opuntia subulata
Oreodaphne californica
Oreopanax capitatum
" *Epremesmillianum*
" *Thibautii*
Osmantibus fragrans
Osteospermum moniliferum
Othonna Athanasi
" *carnosa*
" *trinervia*
Othonopsis cheirifolia
Oxalis cornu
" *pubescens*
" *purpurata*
Passerina birsuta
Passiflora alata
" *hybrida*
Pavonia spinifex
Pelargonium alchemilloidifolium
" *odoratissimum*
" *peltatum*
" *zonale*
Pentstemon campanulatus
Pontisia virgata
Potatis fragrans
Petunia violacea
Peumus Boldus
Phoenix canariensis
Phygelia capensis
Phytica ericoides
Physalis Francheti
Pilea muscosa
Pileocarpus pinnatifolius
Pisum sativum
Pithecoctenium buccinatorium
Plantago spec. from Macedonia
Plectranthus fruticosus
" *tomentosus*
Plumbago capensis

Polygala myrtifolia
" *virgata*
Polygonum capitatum
Potterium spinosum
Primula obconica
" *sinensis*
Psidium glutinosum
Raphiolepis indica
Reinwardtia tetragyna
Rescda odorata
" *Phyteuma*
Ricinus communis
Rosa Banksiae
" *borbonica fulgida*
" *viridiflora*
Rosa sinica
" *Thea (indica)*
Rosmarinus officinalis
Royena pubescens
Ruscus hypoglossum
" *hypophyllum*
Russelia juncea
Salvia cecaleifolia
" *coccinea*
" *confertiflora*
" *discolor*
" *gesneriiflora*
" *Grabamii*
" *Goudotii*
" *Heerii*
" *involuta*
" *leucoroides*
" *leucantha*
" *mexicana*
" *paniculata*
" *pulchella*
" *purpurascens*
" *semitrata*
" *Seseli*
" *splendens*
Saxifraga crassifolia
Scabiosa maritima
Schinus Molle
" *Scutellaria altissima*
" *cordifolia*
Scnecio angulatus
" *deltoides*
" *grandifolius*
" *Ilanburyanus*
" *longifolius*
" *macroglossus*
" *oxyripholius*
Solanum acanthocarpum
" *betaceum*
" *giganteum*
" *jasminoides*
" *lanceolatum*
" *marginatum*
" *Scorothianum*
" *torium*
" *Warscewiczii*
" *nigrum*
Sonchus oleraceus
Sparmannia africana
Sphaeralcea umbellata
Stapelia grandiflora
" *variegata*
Streptocarpus Reginae
Streptosolen Jamesoni
Tacsonia manicata
Tagetes corymbosa
Tecoma capensis
" *Stans*
Templetonia retusa
Tetranthera japonica
Tenacium fruticosum
Thea chinensis viridis
" *assamica*
Tropeolum majus
" *pentaphyllum*
Ulex europaeus
" *parviflorus*
Urospermum Dalechampii
Verbena tenera (?)
Veronica Andersoni
" *cymbalaria*
" *salicifolia*
Vicia Faba
Vinca media
" *minor*
Viola odorata
Vittadenia triloba (= *Erigeron mucronatus*)
Westringia rosmarinifolia
Yucca aloifolia
" *spec* (?)
" *innia elegans*
" *Haageana*
Aloe virens
Anagyris foetida
Centauria aspera
" *Margarite*
Juniperus Oxycedrus
Gnomis minutissima
Stephanophyllum longifolium

NOVELTIES OF 1897.

(Concluded from p. 20.)

STOVE AND GREENHOUSE PLANTS.—Looking back to the time when the greater part of the plant-houses in gardens were filled with specimen Heaths, Epacris, Boronias, &c., so far as the cold-houses were concerned, and with penderous Allamandas, Stephanotis, Clerodendrons, and such-like subjects in the warmer-houses, we see what great changes the altered habits of their owners, brought about by the altered con-

ditions of social life, have wrought. Formerly the plant-houses were expected to give pleasure only when their owners were staying at their country-houses. Now the facilities for quick delivery of packages makes their produce available whether the owners be in the neighbourhood or not, and there is an increasing desire to get full value out of the gardens. Con-

the past year, the continuation of the winter-flowering Begonias of the Mrs. Heal class have resulted in several charming, profusely-flowering, carmine-rose coloured novelties, of which the two best are Begonia Julius, which is quite a new departure in the winter-flowering section, having very double carmine-rose flowers, which are very persistent, each flower lasting

a very dark crimson; Ignacite, a splendid white, veined with rose colour; Topaz, white, striped with rosy-scarlet; and Francisca, orange-scarlet, with white eye. In the Chelsea strain of Streptocarpus, found so useful in gardens, is continued, improvement made, and a new set of hybrids of great beauty has been produced, and named Streptocarpus achimendiflora. Caladiums,



FIG. 12.—COLCHICUM CILICICUM: FLOWERS DEEP ROSE-COLOURED. (SEE P. 34.)

sequently, in place of the large specimens formerly grown, quantities of plants useful for decoration in the house, or for supplying cut flowers, in a very great measure take their places. Hence, the nurseryman has to work up novelties which can be grown easily and in quantity, and which form neat and floriferous plants.

Messrs. Jas. Veitch & Sons have worked carefully on many suitable subjects, and of their novelties of

quite three weeks before fading; and the equally handsome B. Winter Cheer, shown at the meeting of the Royal Horticultural Society, held on December 14. Both these are so floriferous that they show more flowers than leaves when well grown. Of the splendid strain of Hippeastrums (Amaryllis) evolved by Messrs. Veitch, many new ones have appeared, those certificated being Pera, a fine flower of a reddish-scarlet tint, mottled, and banded with white; Thunberg,

especially with a view to secure dwarf compact habit, have also been worked, and the best novelties out of them are C. Lady Stafford Northcote, with silvery-white foliage; C. Mrs. McLeod, bright salmon-red; and C. Silver Queen. Other fine novelties shown by Messrs. Veitch are Nepenthes x Tiveyi, one of the finest and most distinct. Rhododendron superbissimum, the finest pure white of the Himalayan section; Phyllocactus Adonis and P. Syrenus, both

fine, and of a new tint of rose and salmon-rose; *Marattia Burkei*, a noble Fern; and in this section may be mentioned *Disporum Leschenaultianum variegatum*, and the elegant *Apera arundinacea*, both of which, although tolerably hardy, will be more useful grown as decorative plants under glass, and new for that purpose.

Messrs. F. Sander & Co., St. Albans, in *Petunia* Mrs. Fred Sander, staged at the Temple Show, had the very finest novelty of its class, the very double flowers being abundantly produced, prettily fringed, and of a delicate rose-pink and white colour. Nothing like it has been seen, and as a plant for general decorative purposes, it will be largely grown. Their *Petunia* Mrs. John Jefferies, and others of the same strain, are also quite novel. The *Coleus*, too, are favourites at St. Albans; and among the new and good are *C. Black-bedder*, *C. Mrs. Fred Sander Improved*, *C. Gaiety*, and *C. tricolor undulata*. Of *Caladiums*, the best are *C. albanense*, *C. speciosum*, and *C. venosum*; and of other new or rare plants at St. Albans may be mentioned, *Anthurium bogotense*, *Philodendron imperiale* *Laucheana*, *Davallia hirta plumosa*, *Arisæma Bakeriana*, *Canna Sander's* new variegated, *Mapania pandanifolia*, *Begonia peristegia*, and the fine set of *Palms* exhibited at the Hamburgh Show—*Cypripedium Kirtsteiniana*, *Licuala Javenceyi*, *L. Leopoldi*, *Areca Ilsemanii*, *Ptycho-areca Warteliana*, *Demonorops Julesiana*, *Kentia Sanderiana*, and *Thrinax javanense*.

Of novelties noted before, but only just now getting properly appreciated, should be mentioned *Dracæna Godseffiana*, one of the finest decorative plants of our times, its durable, entire, bright-green foliage vividly marked with clear yellow, making it effective either as a large or small specimen, and its cut sprays for florists' purposes are greatly in demand already.

Messrs. B. S. Williams & Son, Holloway, sent out in 1897 the new form of variegated *Agapanthus*—*A. umbellatus aureo-striatus*; several new *Amaryllis*, particularly fine being *Holloway Belle*, *The Hon. Maurice Gifford*, and *Lord Brassey*; *Canna* (flowering) *Antoine Vallot*, *Crimson Banner*, *Eldorado*, and *Prince of Oranges*; two very fine *Cliveias*, *Queen Victoria* and *Holloway Belle*; *Impatiens* *Magenta Queen* and *Salmon Queen*; *Croton Johannis gracilis*, one of the most elegant of *Codieums*; and a fine set of eight new and distinct *Gloxinias*.

Among other worthy novelties exhibited and certificated during 1897, may be mentioned the fine set of *Amaryllis* exhibited by Captain Holford, of Westonbirt (gr., Mr. Chapman), at the Royal Horticultural Society, on April 13, and of which *Chimborazo*, the *Czar*, and *Duke of York*, all of intensely rich colour, secured Awards of Merit; the useful and pretty late-flowering *Nerines*, raised by H. J. Elwes, Esq., out of whose effective group shown at the Royal Horticultural Society, on October 26, seven received awards. The pretty *Ansemia rotundifolia*, of Mr. Wm. Bull; *Sonerila Lady Burton*, and *S. Leopold II.*, of Sir Trevor Lawrence; *Lomaria ciliata grandis*, and *L. c. Major*, of Mr. H. B. May; *Richardia Pentlandi maculata*, of Messrs. John Laing & Son; and the fine *Bougainvillea Cypheri*, for which Mr. John Cypher, of Cheltenham, secured the gold medal at the last Shrewsbury show as the best plant exhibited.

Begonias are justly as great favourites as ever, though there is increasing difficulty in finding distinct novelties in the older classes of the tuberous-rooted kinds. Early though it was for *Begonias*, the last great Temple Show brought forth a grand display of them. Selections made in the fine group shown by Messrs. John Laing & Son were *Duchess of Marlborough*, a fine double, rose-pink; *Lady Hamilton*, single white; *Clio* and *Diamond Jubilee*, double yellow; and *Doctor Jim*, double red. In the stand shown by Mr. J. R. Box, of West Wickham and Croydon, fine things were *Queen of Wurtemberg*, double yellow; and *Queen of Queens*, apricot-yellow. In Mr. Cannell's (of Swanley) group, the best were Mrs. W. B. Milner, crimson; Mrs. Leopold de Rothschild, and Lord Sherborne, grand flowers.

Mr. H. J. Jones displayed his fine improvements well, and among them were noted B. H. J. Jones, one of the most brilliant scarlets; *La France*, pink and primrose yellow. In Mr. Thos. Ware's group, very fine were *Jubilee Beauty*, carmine-scarlet; *Samuel Pope*, and *Jubilee Queen*. Mr. W. Bayler Hartland, of Cork, has also given much attention to the tuberous *Begonia*, and his B. Mrs. W. B. Hartland is, perhaps, the finest double white.

Messrs. Sutton & Sons, of Reading, also do good work in the perfecting of their fine strain of dwarf, floriferous, and showy, fibrous-rooted *Begonias*, in which they have attained something like perfection, as demonstrated by the fine display they made with them at the Temple Show. Sutton's *Snowflake*, *Crimson Gem*, and *Coral Gem* may be taken as good examples of a race of plants good for all purposes, such as bedding, basket-work, conservatory, and indoor decoration, and for cutting. In *Gloxinias*, too, the Sutton strain still preserve their high character; and it is generally admitted that it is infinitely better and more satisfactory to grow from such seeds than to trouble to propagate by old tubers or leaves, as finer flowers are secured without the risk of disease.

Chrysanthemums have been so well and numerous recruited during the year as to demand a special notice. Suffice it therefore for the present purposes to say that among the foremost of the introducers of fine novelties are Messrs. H. J. Jones, Owen, Wells, Godfrey, Cannell & Sons, all of whose productions, together with those of others, have frequently been remarked in the columns of the *Gardeners' Chronicle* during the past year.

Hardy Plants.—Of these during 1897 Messrs. Jas. Veitch & Sons have received awards for *Escallonia* \times *Laugleyensis*, *Celmisia Monroei*, *Hibiscus celestis*, *H. totus alba*, *Veronica La Seduisante*, *V. Silver Queen*, *Libocedrus decurrens aurea*, and *Cedrus atlantica aurea*, the last-named not new, but yet very rarely seen in gardens.

The *Narcissus*, which, together with the *Iris*, may be regarded as on a par with the *Orchids* among bulbous plants, have for chief novelties the handsome *N. Ellen Willmot*, *Lettice Harmer*, *Snowdrop*, and *Southern Star*, of the Rev. G. H. Englehart; and the *N. Beauty*, *Odorus*, *Hermione*, *Samson*, *Victoria*, and *Snowflake* of Messrs. Barr & Son.

Martin Smith Esq., Mr. Jas. Douglas, Mr. C. Turner and others, have produced novelties in *Carnations*.

Messrs. Kelway & Son, of Langport, still pursue the raising of the *Gladiolus*, *Iris*, *Amaryllis*, *Gallardias*, *Pyrethrums*, *Delphiniums*, *Pæonies*, and other flowers for which they are noted, with success.

Messrs. Wallace & Co., of Colchester, have again by their good culture brought under notice the beautiful race of *Calochortus*, or *Mariposa Lily*, and they have secured awards for three new or rare species during the year.

The *Dahlias*, *Roses*, and other great classes of florists' flowers, have been well recruited by those who make the culture of them a special feature, and generally speaking the year's work has been satisfactory.

Among the novelties or rare plants illustrated in the *Gardeners' Chronicle* in 1897 are—

- Alberty magna*, December 11, p. 411.
- Apera arundinacea*, October 23, p. 283.
- Angelonia grandiflora alba*, October 30, p. 307.
- Aristolochia* \times *hybrida*, August 21, p. 127 (the first hybrid recorded in this genus).
- Aristolochia Goldieana*, May 22, p. 346.
- Asphodeline taurica*, March 13, p. 175.
- Begonia Duchess of Marlborough*, May 29, Supplement.
- Begonia Lady Hamilton*, May 29, Supplement.
- Begonia Mrs. W. B. Hartland*, November 20, p. 367.
- Begonia*, crested, September 18, p. 203.
- Begonia*, Sutton's fibrous-rooted, May 29, Supplement.
- Campanula Balchiniana* \times , July 10, p. 17.
- Carnations*, new varieties, September 11, p. 175, 177.
- Ceropegia Woodii*, November 20, p. 385.
- Caladium albanense*, May 29, p. 346.
- Caladium speciosum*, May 29, p. 346.

Caladium Thomas Peed, May 29, p. 352.

Caladium Roncador, May 29, p. 352.

Chionoscilla \times *Alleni*, March 20, p. 191.

Chrysanthemum Mrs. Chas. Birch, December 4, p. 405.

Cyclamen persicum, fringed, January 20, p. 71.

Cyclamen persicum, May 22, p. 331.

Davallia hirta plumosa, May 29, p. 355.

Dracæna Godseffiana, May 29, p. 347.

Echinocystis lobata, October 16, p. 271.

Escallonia \times *Laugleyensis*, July 10, p. 15.

Ficus radicans variegata, September 11, p. 185.

Fritillaria pluriflora, April 10, p. 231.

Gloxinia Her Majesty, June 12, p. 330.

Gloxinia Prince of Wales, May 29, Supplement.

Hydraea Hortensia, Veitch's var., June 5, Supplement.

Leptostyne Stillmani, Nov. 6, p. 333.

Marattia Burkei, December 13, p. 435.

Mapania pandanifolia, May 29, p. 349.

Megacaron orientale, October 2, p. 226, 227.

Michauxia Tchihatchewi, March 20, p. 183.

Myosotis palustris, Tom Thumb, October 20, p. 307.

Nægelia amabilis, December 11, p. 413.

Narcissus Victoria, June 12, p. 380.

Narcissus Ellen Willmot, April 3, p. 223.

Narcissus Southern Star, April 3, p. 223.

Nepenthes \times *Tiveyi*, September 18, p. 200, 201.

Nymphaea Laydekeri, April 3, Supplement.

Nymphaea Marliacea albida, January 30, p. 77.

Passiflora pruinosa, December 4, p. 401.

Petunia Mrs. Fred Sander, June 26, p. 415.

Philadelphus Lemoinei, *Avalanche*, February 6, p. 89.

Primula Traillii, October 16, p. 263.

Raspberry-Blackberry, October 2, p. 235.

Salpiglossis Emperor, November 20, p. 363.

Spiræa arguta \times , July 3, p. 3.

Strawberry, Veitch's *Perfection*, July 31.

Tulipa Kauffmanni, April 3, p. 217.

Violets, new types, April 17, p. 249.

TO FORCE TURNIPS.

Good Turnips can be obtained by forcing, providing the heat be moderate, and the plants are grown in a healthy atmosphere, free from rank steam. For years I deplored the scarcity of fresh sweet Turnips in March, April, and May. I am aware that from a late sowing in August good roots may be had through March, but as soon as new growth commences they lose quality.

To force Turnips successfully, no draught should be permitted, but more air is required than is usually given in the case of other vegetables, and ample moisture, with very little top-heat, for if the top growth be too much in advance of the root, they may "bolt." We rely largely upon fresh leaves wherewith to make the hotbed for our early Turnips, though they are slow in giving the necessary warmth; the leaves afford a genial moisture. The present is a good time to prepare for forcing, and about twelve or thirteen weeks will suffice to produce fine roots. Frames are preferable to pits or houses for forcing these roots, as the plants grown in frames are so much nearer the glass, and, consequently, the light. The plant does well in a fairly light compost, if it be made firm; and I find a liberal amount of wood-ashes much better than rich manure, which is best omitted.

Turnips can be grown in much less time than I have advised, but my remarks concern a full crop. Forced slowly, one can secure as good roots as those in the open garden, and of first-rate flavour. I used to get early roots of this vegetable without the aid of glass merely with leaves and mats, but they were later, and that was in a northern locality.

I think the Extra Early Milan type, of which there are two varieties, the red and the white, are far superior to the Early Paris Market. The first-named varieties are much flatter, and more precocious than any I know of, being quite ten days earlier, and less likely to run to seed during forcing. Of the two

varieties, I prefer the purple-topped, but, of course, neither is useful for keeping purposes. At least 6 inches of soil should be given the roots, and they should never lack moisture from the time the plants show above the soil. Early thinning is advisable, and the seeds should be sown thinly, as under glass every seed germinates. Plenty of ventilation in fine weather should be given, and it is far better to cover the glass at night in severe weather than give much added heat; 55° at night is ample, and 10° higher by day. In mild weather, give a little ventilation during the night. When growth is active, weak manure-water may be given; and should the plants not bulb quickly, it will be well to keep them a little cooler. *G. Wythes.*

WORM-EATING SLUGS.

JUDGING from the correspondence which has recently appeared in these columns, one would say that the worm-eating slugs still continue to receive their fair share of attention from those in whose

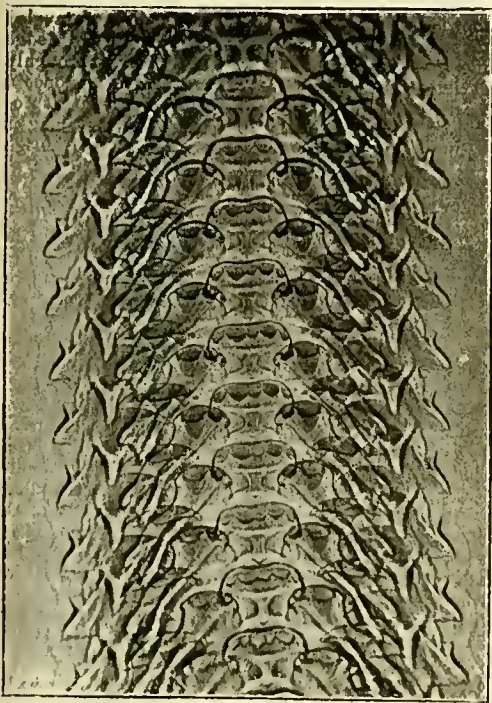


FIG. 14.—AULOPOMA HELICINUM.

Portion of the tongue, showing the teeth. Highly magnified.

house. It is hardly necessary to point out that it is Mr. S. H. Boyle himself (*ante*, p. 349) who is wrong as to the food of these creatures, the devouring of earth-worms by them having been recorded by many observers, from du Gué in 1740, onwards. The accounts given by a number of previous authors were discussed by the present writer in the light of some fresh experiments made by him, in the *Zoologist* for August, 1893. The most remarkable part of the performance is the way in which the "tongue" (radula or lingual ribbon), which is borne upon a spoon-shaped cartilage, is rapidly shot out from the mouth of the hungry slug; the "tongue" (fig. 5) bristles with many barbed

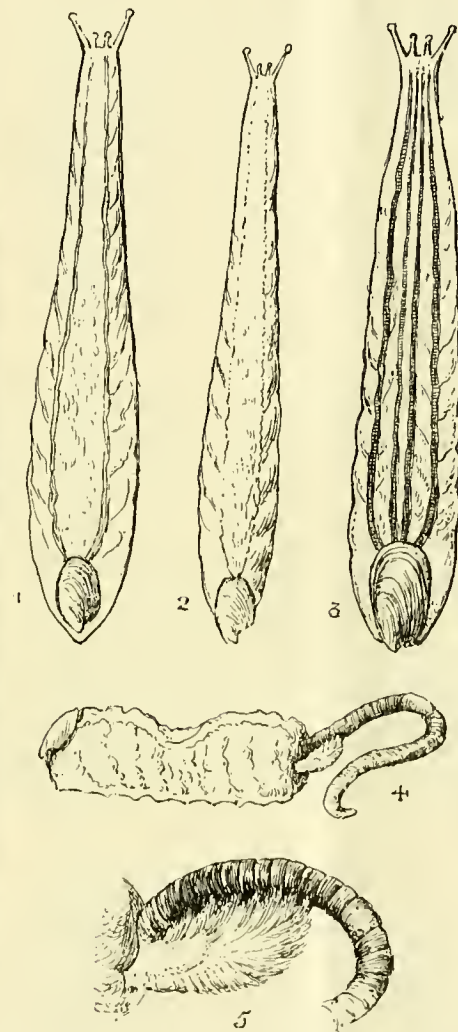


FIG. 13.—TESTACELLAS.

1, *T. haliotidea*; 2, *T. scutulum*; 3, *T. Maugei*; 4, a specimen of *T. scutulum* which has just seized a worm; 5, The "tongue" as shown in figure 4, but greatly enlarged.

"teeth" raking backwards, and its edges close inwards as it comes to its point of fullest extension, thus seizing anything that may be within its grasp (fig. 4), while the barbed "teeth" can pierce and hold any prey with which they may come into contact. In connection with "W. T.'s" letter (*ante*, p. 386) it may be pointed out that there is no "jaw" present in this or in any other genus belonging to the family Testacellidae. In the paper referred to above, the matter of feeding is summed up as follows:—

"It will be seen that Testacella is particularly well adapted for catching its prey, should it meet them in the mouth or other portions of their tunnels. The slug on coming into contact with the head of an advancing earthworm, appearing above ground or what not, would contract, and shrinking back would entirely block the way with its now swollen body. The worm in endeavouring to proceed, with more

certainly than in the experiments, would continue to irritate the surface of the slug, seeking the groove above the slug's mouth—in some cases small worms actually manage to force their prostomia (noses) into the oral aperture—and would be caught in the grip of the radula as it was shot out, and held securely, the slug maintaining by its broadened body a firm hold on the walls of the burrow. This method of procedure would not, of course, prevent the Testacella from attempting to secure worms in the open, its stealthy movements not alarming the latter in any way; but it would not be so certain of a meal, as the chances of a successful hit with the radula are by no means so great." In the quotation, it is assumed that the worm is seized by the anterior end, at least when underground, and in spite of Mr. Parish's statement (*ante*, p. 404), one is still inclined to hold the opinion that this method is the one intended to be adopted, for the reasons given below, though when the animals are on the surface as hinted above, it probably is a case of seizing any possible part.

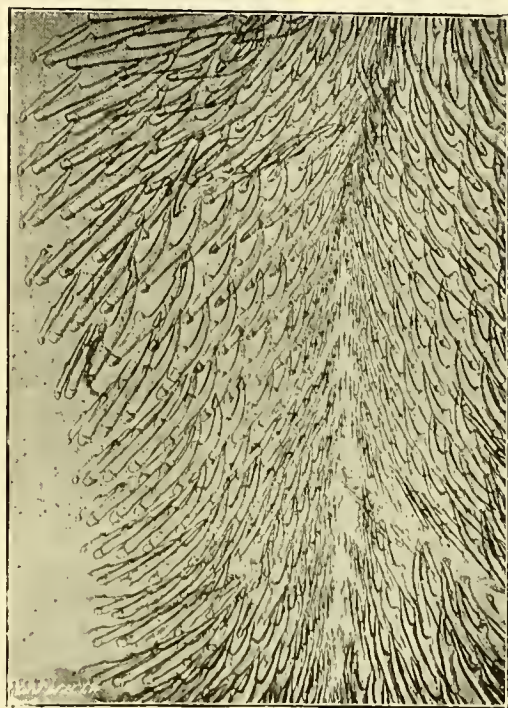


FIG. 15.—TESTACELLA MAUGEI.

Portion of the tongue, showing the teeth. Highly magnified.

way they come, but that, at the same time, there are still some points for one to learn with regard to their peculiar habits. It was apparently a notice which the Editor of the *Gardeners' Chronicle* kindly published, in the hope of helping the present writer in his work on these animals, which gave rise to the letters alluded to, and, under the circumstances, some observations which the latter may be able to offer upon points which have cropped up or upon the subject generally, may be found to be of interest.

As the bulk of correspondents to whom one is indebted for information and for specimens consists of horticulturists, it may be said that the slugs in question are known to a fair number of gardeners; but, on the other hand, it is impossible to disagree with Mr. M. Webster (*ante*, p. 314) when he says that the majority are unacquainted with them. The question of distribution, raised by the same correspondent, will come in more aptly when something has been said about the species occurring in the British Isles. The statement that Testacellæ, like other subterranean animals—earth-worms for instance—are sometimes to be found above-ground, can be endorsed by the writer, who has often found them under logs during early spring and autumn, and at other times on the surface of the soil in a hot-

(1) The majority of observers mention the anterior end.

(2) In all experimental cases it was found that worms seized by the middle, escaped.

(3) With a large worm it would be difficult or even impossible for two thicknesses of worm to be swallowed at once.

(4) In the only case (and this in a tin box) where the writer found a slug which had seized a worm by the middle, the latter was eventually dropped even though held for more than twelve hours.

There are three species of Testacella which occur on these islands, one of which *T. maugei* mentioned by "W. T." (*ante*, p. 386) is easily distinguished by its comparatively large shell from the other two, *T. haliotidea* and *T. scutulum*, both of which are alluded to in the correspondence under the former name. Mr. M. Webster's description seems to fit *T. scutulum*, and while specimens received from Gledstone Hall belong to this species, those from Stourbridge (*ante*, p. 349) are *T. haliotidea*. It is only during the last few years that our naturalists have recognised as distinct, the two species with smaller and flatter shells, which differ very markedly internally, and can be distinguished in most cases without difficulty by their outward characteristics.

during the winter months, but in summer it prefers a more damp and shady position. At the present time the flower-buds are forming at the apex of the newly-made growths, and the plant should be well supplied with water until the flowers fade. The small leaves of this species must be guarded against red-spider. My practice is to take the plants down two or three times a week and hold them head downwards in tepid rain-water, then with finger and thumb gently wipe the under-sides of the foliage. When the plants have flowered, growth soon commences, and, if necessary, the plants may be repotted, but the roots must be disturbed as little as possible. The rooting material should consist chiefly of sphagnum-moss with a few pieces of fibrous peat, and below this good drainage. *Cypripedium Spicerianum* and *C. Charlesworthi* thrive well in a cool, shady corner of the intermediate house. Having flowered, the plants may be repotted, if this be necessary. Neither species require much rooting space, but it is advisable to raise them well above the rim of the pot. The pots used should be three-fourths filled with drainage materials. Above this the compost may consist of rough peat and clean-picked sphagnum-moss in equal parts, a few crocks or broken pieces of limestone about 1 inch square being mixed with it. When well rooted into the new soil, both species may be given abundance of water both at the root and overhead.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Creeping and Climbing Plants.—The fastening of these plants on walls and trellises should be attended to in mild weather, carrying out first the necessary pruning, bearing in mind when performing the last to distinguish between plants which bloom on last year's shoots and spurs, and those that flower on the new growths; climbing plants that bloom on the previous year's wood being better left unpruned till the flowering season is past, and merely, at this season, removing redundant and weak or flowerless shoots, and topping those that have attained the limit of allotted space. Whereas, the latter may be pruned much after the manner of stone fruit, leaving long and short flowering-spurs when it is the habit of the plant to produce these. Avoid crowding the shoots, make the main branches thoroughly secure, and do not fasten every shoot close to the wall, rather allow some of the shoots to hang somewhat unrestrained. A heavy mulching of rotten-manure should be placed over the roots of climbing plants, covering it with fresh mould. In selecting climbers for a new border it is well to give a thought to those whose flowers are useful in a cut state. For general purposes the following are very useful:—*Ampelopsis Veitchi*, this variety needs no nailing, as it clings to the smoothest substance with great tenacity; *A. purpurea*, a dark foliage variety; *A. hederacea*, the common Virginian Creeper; and *A. Hoggi*, the largest leaved variety; *Garrya elliptica*, *Kerria japonica*, the different varieties of *Lonicera*, *Passiflora coerulea*, the common Passion Flower, and its white progeny, *Constance Elliot*; *Pyrus japonica*, and for late autumn, the yellow-flowered *Jasminum grandiflorum*; and for winter bloom, *J. nudiflorum*, *Wistaria sinensis*, and its white variety. Of Roses, Dundee Rambler, the white and yellow Banksian Roses, Paul's Carmine Pillar, Blairii No. 2, *Félicité-Perpétue*, and Bennett's Seedling, and the many species and varieties of Clematis, not forgetting the early and abundant flowerer *C. montana*. In planting climbers against a wall it is advisable to keep the roots of the plants as far away from the set-off of the wall as possible, otherwise the plants will suffer severely from lack of moisture in the summer unless large quantities of water are afforded the borders. The soil should be deeply dug and liberally manured, and allowed a few weeks to settle down before the plants are fastened to the wall. Large tree-roots can be made effective by covering them with Clematis, Honey-suckles, and Roses; as may also the stumps of trees, without removing them from their places.

Carnations.—The layers planted in October have made some amount of growth, so mild has been the weather. A careful watch should be kept for grubs of various kinds, especially those of the weevils, and for wireworms, which are very active just now. For the last-named, sliced Carrots and stumps of Cabbage stuck in the soil form attractive baits. Afford water carefully to Carnations in pots, and remove dead and decayed foliage, affording air in abundance when it is not raining or it is very frosty; and let the ground be got in readiness for planting them in the month of March, liberally manuring it with rotten-dung and

leaf-soil, and if the soil is retentive, use plenty of sharp sand or road-grit, and throw the soil up roughly for the elements to pulverise.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Tomatos.—Plants established in 4-inch or 5-inch pots may now be planted at a distance of 15 inches apart in lines in shallow borders in a house previously prepared and cleaned. Only a small quantity of soil need be given at first, as additions can be made afterwards as the plants require it. Use a porous soil, such as one consisting of three parts loam to one of old lime rubbish, or burned earth. After planting afford the soil water, repeating the application as often as it becomes dry. The temperature should be about 60° at night, and 65° in the day, with a rise of 10° by sun-heat. Keep a little ventilation open at the top of the house whenever the weather is favourable. The plants will produce ripe fruit in May, and continue to bear throughout the summer, if they have sufficient space in which to grow. The one-stem system is the best mode of training Tomatos, therefore all side-shoots must be pinched off; and for this purpose look over them twice a week. Another sowing may now be made.

The Raising of Vines from Eyes.—The general method of propagating the Grape-vine is by means of "eyes," that is lengths of matured one-year-old shoots furnished with one bud or "eye," and the present is a very suitable period to strike them. When propagating Vines, consideration should be given to the purposes they will be put to, whether for planting in the vinery border, or fruiting in pots when one or two years old. The best varieties for general use when fruited early in pots are the Black Hamburgh and Foster's Seedling. The best eyes are those from the lower part of last year's lateral shoots. In preparing the eyes, cut the wood slightly slanting $\frac{1}{2}$ inch above the eye and 1 inch below it. Some growers place the eyes in small squares of turf, and some in large 60-sized flower-pots, and I think the latter is the more convenient method. The pots should have one crock over the hole, and be filled to within $\frac{1}{2}$ inch of the rim with loam mixed with about $\frac{1}{3}$ of its bulk of silver-sand, one eye being placed in the middle of each pot with the point of the bud slightly beneath the surface of the soil. Press the soil firmly into the pots, and closely round the cutting. Plunge the pots in a light part of a propagating-pit, or in a dung-bed frame with a bottom heat of about 80°; and keep the surface of the soil slightly moist until growth commences; then treat them as rooted plants, affording water when required—that is, when the soil is approaching dryness. When well rooted, and before they get root-bound, shift them in 48's, and continue warm vinery treatment.

Vine Borders.—If young Vines are going to be planted later in the year, the needful preparations may now be carried out, which may consist of removing the soil and drainage, and replacing the latter, and filling in with the new compost. The depth of a border may range from 13½ feet to 4 feet, allowing 1 to 1½ foot in depth for drainage, and about 2½ feet for soil. A layer of 4 to 6 inches of concrete should be spread over the bottom, upon which the drainage rubble may be laid; and for a Vine-border inside the house the slope of the floor should be towards the back of the vinery, and for an outside one, towards the front wall of the border, in both cases, outlet drains being provided. The fall of the concrete floor inside is applicable to a lean-to vinery, but for a span-roofed house it should fall from the side to the centre, and again from the centre to the ends, the place for the outlets. The concrete should be allowed to set before putting in the drainage materials. Broken bricks form a good kind of drainage if placed on their sides and ends by hand, commencing with the larger pieces at the bottom—half bricks—and finishing with the smaller. A suitable soil for the Grape-vine consists of eight parts middling heavy loam, cut from 4 to 6 inches thick from an old pasture-field, charred soil one part, and lime-rubble one part, with a 5-inch potful of bone-meal to each wheelbarrow load of soil. Prepare the lime-rubble by sifting it in a half-inch sieve, to deprive it of the dust, the coarse siftings being the only part used. These aid the percolation of water through the soil, furnish a food when dissolved by rain needful for the Vine, and tend to keep the soil porous and sweet for a great many years. Before filling in the soil, place fresh sods over the drainage, grass side downwards. The soil should be put in, in layers, well treading or ramming it as it is filled in;

consequently, it must not be in a wet condition. I advocate the piecemeal method of making a border, a piece the length of the border and 4 feet in width being sufficient for one year, additions being made each year when found necessary, but completing the inside border the first. Be particular in allowing nothing of a woody nature going into the borders, such as the roots of trees, which are apt to come in with the loam, as these cause the growth of fungus in the soil.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

Rotation of Crops.—This is an important subject, and should be practised in every garden. Cabbages, and all crops of that kind, should not follow each other upon the same land. Nor should Peas and Beans occupy the same ground year after year. A complete change of crop is a comparative rest to the ground. If a crop has from any cause to be followed by a like one, then trench deeply, and expose the soil as much as possible to the weather by pointing it several times before sowing or planting the next crop.

Early Peas.—Let the varieties for forcing be of dwarf habit and early podders, sowing the seeds in pots filled with good rich soil not too finely broken up, so that the soil will cling to the roots when transplanting is performed. If boxes be employed, place strips of freshly-cut turf grassy-side downwards in the boxes, and on these sow the Peas in shallow notches cut in the turves, covering them with some finely-sifted soil. If the boxes are made 2 feet long, 18 inches wide, and $\frac{1}{2}$ inches deep, and fitted with movable bottoms, they are very convenient for transporting to other houses, or to the open ground. Place the pots or boxes in a cool Peach-house, pit, or frame, afford no artificial heat unless there is every facility for the early production of pods at command. Most persons wish to have early dishes of Peas, but this cannot be realised unless care be bestowed on the preparation of the soil. Let trenches as for Celery be thrown out, digging plenty rotten manure into the bottoms, and return most of the soil to the trenches. According to the locality, the beginning of March, if it be mild, or later in that month, is a good time to plant out the Peas in the trenches in bunches of four or five plants, set out 6 inches apart in a straight row made down the middle of each trench, the stems being covered to a depth of 2 inches with fine soil, either consisting of the staple, or potting-bench refuse. A small ridge of soil may be drawn up to the rows on either side, but not quite touching the plants at this time. This done, stick small shoots of Laurel, Yew, or Fir along the rows as a protection against frost and wind. Good varieties for early work are American Wonder, 10 inches high; and Chelsea Gem, 16 inches high; both good flavoured, and excellent early Peas.

Large Onions.—A sowing may now be made in warmth of 50° to 55° of Ailsa Craig, or other variety of large growth, sowing the seed in pans or boxes filled with rich light soil, first pressing it firmly down, and covering the seeds lightly, using the hand to make the surface quite firm. Afford the soil tepid-water with a fine rose-can, and place sheets of paper over the boxes, &c., so as to check evaporation, as the less water applied before the seeds come up the better. On the appearance of any of the seedlings, place the pan or box near the glass, and afford air in small amount in mild weather, the chief danger to guard against being drawing. When large enough to handle, prick the plants out into boxes filled with two-thirds rich turfy loam, and half-rotten leaf-mould one-third, and grow them on in a warm pit or greenhouse without check till April, then harden-off, and plant out in a sunny position, in soil prepared early in the winter by trenching and heavy manuring. The plants may stand at 9 inches apart in the rows, the latter being 18 inches apart.

Tomatos.—At this date seed may be sown in well-drained pots, filled with light soil barely covering the seeds with finely-sifted mould, and placing the pots in a temperature of 60° to 70°, a bit of glass being put over each. Varieties suitable for early cropping are Early Ruby, Frogmore Selected, Conqueror, and Hackwood Park.

General Remarks.—The stores of Potatoes, Onions, Carrots, Beet, and other roots and bulbs, should be examined in bad weather, removing all that are beginning to decay. Attend closely to the various hot-beds, affording air in small amount when the nights are mild, so as to strengthen the plants therein, and allow the redundant moisture to escape; and in order that this can be done, the linings must be kept up, and changed when they have become cool.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

THURSDAY, JAN. 20 { Linnean Soc. Meet.
Ann. Meeting and Election of Pensioners to the Gardeners' Royal Benevolent Institution.
3 P.M.

SALES.

MONDAY, Jan. 17. { Border Plants, Roses, Bulbs, &c.,
at Mr. Stevens' Rooms.

TUESDAY, JAN. 18 { Continental Plants, Cannas, Carnations, Iris, Roses, &c., at Protheroe & Morris' Rooms.

WEDNESDAY, JAN. 19 { Japanese Lilies, Azaleas, Roses, Greenhouse Plants, Spiræas, Gladioli, &c., at Protheroe & Morris' Rooms.
Roses, Fruit Trees, Shrubs, Plants, &c., at Mr. Stevens' Rooms.

THURSDAY, JAN. 21 { Hardy Perennials, 400 Azaleas, Roses, Hardy Climbing Plants in large variety, &c., at Protheroe & Morris' Rooms.
Border Plants, Lilliums, Bulbs, &c., at Mr. Stevens' Rooms.

FRIDAY, JAN. 21 { Imported and Established Orchids
at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—37° 2'.

ACTUAL TEMPERATURES:—

LONDON.—January 12 (6 P.M.): Max., 51°; Min., 44°.
PROVINCES.—January 12 (6 P.M.): Max., 52°, Seilly;
Min., 40°, north-east Scotland.
Weather dull, mild, and foggy.

THE year has hardly opened

JOHN LINDEN.

before we are called on to record the loss of an intrepid traveller, a keen botanist, an enthusiastic collector, one who has probably been the means of introducing a larger number of interesting plants to cultivation than any of his colleagues, and a man of well-nigh unrivalled information on matters horticultural. JEAN LINDEN died peacefully on the 12th inst., in his eighty-first year. His death had, we believe, been anticipated for some little time, but for those of us who remember his military bearing and active habits, his removal comes as a shock. JEAN LINDEN was born at Luxembourg in 1817, but removed to Belgium, and was one of the very first students at the Faculty of Sciences in the newly founded University of Brussels. His subsequent career was sketched in outline by himself at a complimentary banquet offered to him and his son LUCIEN by the Society known as the Orchidéenne. From that account we take most of the following details. In 1835 he was entrusted by the Belgian Government with a scientific mission to South America, in company with FUNCK and GHIESBREGHT, two men who also achieved note in the field of horticulture and botany. The party landed in Brazil in December, 1835, after a voyage of three months—a journey now accomplished in little over a fortnight.

"He (Linden) explored the provinces of Rio, Spiritu Santo, Minas, Geraes, and San Paolo. The collections brought by him from Brazil in 1837 were publicly exhibited in Brussels. In December, 1837, he traversed the north and west of Cuba; the following year he penetrated into the interior of Mexico, in

spite of the many dangers to which he was exposed by the warlike condition of this unfortunate Republic. He visited the Anahuac plateau, the volcano Popocatepetl, the peak of Orizaba, and all the eastern slopes of the Mexican Cordilleras. After two years of incessant travel and most fruitful research in this rich corner of the vegetable kingdom, he embarked at Vera Cruz for Campeachy, whence he extended his observations to Yucatan. It was on one of these expeditions to the Laguna of Terminos that he contracted a severe attack of yellow fever, from which he recovered as by a miracle, but it was followed by a painful convalescence, lasting three long months. He was scarcely restored to health when he journeyed by sea into the Tabasco State, then explored the high regions of Chiapaz, penetrated into North Guatemala, then in revolution, and returned along the Gulf of Mexico. At the end of 1840 fever detained him at Guadaloupe de

It may be noted that while at Bogota he fell in with HARTWEG, then collecting for the Horticultural Society of London; and when on an excursion with him to Pacho in 1841, they lighted upon *Odontoglossum crispum*, the most popular of Orchids, but one which was not generally introduced into cultivation till 1863. Little was known then of the extreme variability of this species, and hence it received the names of *Alexandrie* and *Blunty*, names which are now tacitly discarded in favour of the original appellation.

"From Caracas, M. LINDEN travelled westward in the delightful valley of Aragua, passing by San Mateo, where Bolivar, the emancipator, was born. From Valentia he proceeded northward, and having again climbed the mountains, he descended to Puerto-Cabello, whence he left for Barquisimeto, passing by



THE LATE M. JEAN LINDEN

Frontera, whence he visited the United States in passing by Campeachy and Havana. In 1841 he returned to Belgium, where he took some weeks' rest, preparing for a long voyage which he proposed to make to Columbia. By a happy chance he was put into communication with the illustrious Alexander von Humboldt. . . . On Dec. 27, 1841, M. Linden arrived at Guara. Directly he landed he explored the sides of the Cordilleras of the Venezuelan coasts, the base of which are washed by the waves of the Caribbean Sea, and whose crests are hidden in cloud. He travelled the elevated slopes of the Cerro de Avilo, ascended the Silla of Caracas, and then devoted three months to exploring the province of Caracas. During these excursions the traveller was more especially occupied with ascertaining the possibility of growing Orchids in cool temperatures. In an expedition on one of the highest summits of the Cordilleras, he found Orchids in bloom in a region where the temperature falls to freezing-point every morning. The proof was found, and he could confidently imitate Nature."

the forest of San-Felipe, the morbid emanations from which are greatly dreaded. He crossed the steps of Quibor. At the foot of the first slopes of the Andes he was stopped by the Rio Tocuyo, which the rains had changed into a torrent. He forced a passage at the cost of some mules, and the collections which had been amassed since leaving San-Felipe. He continued to scale the slopes of the Cordilleras, and stopped at a "rancho" situated at about 9000 feet (2750 metres) altitude, where in spite of the cold mornings (−2°), he found a rich mountain flora. At these elevations he more than once found the ground hard with frost, but in spite of that gathered abundant harvests. He crossed the redoubtable Paramo de Macuchies, situated 13,000 feet (4012 metres) above sea-level, and arrived at Merida, the chief town of the province of that name. He devoted several months to a fruitful exploration of this province and of Trujillo. He crossed the Rio Tachira and penetrated into the province of Santandar in New Granada, turned southwards, and traversed the provinces of Soto, Socorro, and Velez, arriving at Bogota in October

FIG. 17.—*RENANTHERA INSCHOOTIANA*: FLOWERS, ORANGE-RED. (SEE P. 42.)



1842. He visited the high plateau and the surrounding mountains. In December he descended from the cold regions towards the basin of Rio Magdalena, which, opposite Melgar, 350 leagues from the mouth, is already 325 feet (100 metres) broad; he crossed this river by swimming, traversed the great plains of Espinal, and stopped at Ithogué, chief town of the province of Mariquita, situated at the foot of the mountains of Quindiu and the majestic peak of Tolima, the snowy summit of which towers above all the Eastern Cordillera of New Grenada. He ascended Tolima, reaching the snow limit, where he camped on January 5, 1843, at an altitude of 15,000 feet (4930 metres). During many weeks he explored these high latitudes, then penetrated into the vast forests of Quindiu, and from there into the low regions of the Cauca Valley, which extends to the coasts of the South Sea. On August 17 he returned to Caracas; he left on November 16 from Guayra for Puerto Cabello, whence he went to Rio Hacha, beside New Grenada, to explore the mysterious Sierra Nevada of Santa Marta, which he traversed thoroughly. After innumerable dangers he reached the summit of Nevada, 14,766 feet (4800 metres) in altitude, seeing from this culminating point the Caribbean Sea, the lake of Maracaybo, all the peninsula of Goajira, the high mountains of the province of Ocaña, the river Magdalena, and the low forests of Darien. He then made a not less perilous excursion into the interior of Goajira, inhabited by ferocious and cannibal Indians. He embarked at Rio Hacha for Jamaica, and thence went to Cuba, of which the eastern part, covered with high mountains, had not yet been scientifically explored; for six months he explored these coasts, which he left after the terrible storm which devastated this isle in October, 1844; he returned to the United States, and to Europe finally, after ten years of travel, in October, 1845."

LINDEN was for several years director of the Zoological Gardens at Brussels, and consul for Luxembourg.

After the death of AMBROISE VERSCHAFFELT, LINDEN established himself as a nurseryman at Ghent, but eventually returned to Brussels, where in conjunction with his son LUCIEN, he established the model establishment known as the *Horticulture Internationale*. His great knowledge of plants and of the localities in which they grow naturally, was of great service to numerous collectors sent out by him, or under his auspices. LINDEN'S contributions to Horticultural literature have also been very great and substantial. The *Illustration Horticole*, the *Lindenia*, and other illustrated works carried on for a series of years form very valuable contributions to our knowledge of plants. LINDEN received very numerous marks of honour from his own and from various continental governments.

RENANTHERA IMSCHOOTIANA.—*Renanthera coccinea*, the oldest known species of the genus, is always admired when it flowers, but two things are generally urged against it, viz., its rambling habit of growth, and the difficulty of flowering it. The Assamese species, *R. imschootiana* (fig. 17), however, is a plant of dwarf and neat habit, and so far as can be judged by the limited experience of it in gardens, a most floriferous one. It first flowered with Mr. A. VAN IMSCHOOT, of Mont St. Amand, Ghent, in 1891, and it was named in honour of that ardent lover of rare and curious Orchids. On June 11, 1895, the specimen we here illustrate was exhibited by E. H. WOODALL, Esq., of St. Nicholas House, Scarborough (gr., Mr. HUGHES), at the Royal Horticultural Society, when the Orchid Committee voted it an Award of Merit. It is one of the prettiest introductions which Messrs. F. SANDER & Co. have made, and an additional circumstance in its favour is that it thrives well in a tolerably cool intermediate house. The prevailing colour of the flowers is a brilliant scarlet-crimson, with a slight trace of orange, the broad lower sepals being of that colour. The narrow upper sepal and the petals are

white, changing to yellow, the lower halves bearing some small, and the outer halves larger crimson spots.

ROYAL HORTICULTURAL SOCIETY.—The Council having been consulted as to a proper mode of the use of the Victoria Medal by members of the trade, have decided that the only permissible method is by the [use of the] letters V.M.H. following the name of the holder of a Medal. No other mention of the Medal can be properly made in any application pertaining to horticultural trade, or relating thereto. By order of Council, W. WILKS, Sec.

LINNEAN SOCIETY OF LONDON.—On the occasion of the meeting of this Society on Thursday, December 16, FRANK CRISP, LL.B., Treasurer and Vice-President in the chair, Mr. W. CARRUTHERS, F.R.S., exhibited and made remarks upon a fungus (*Rossellinia lignaria*) which had been found to attack living Ash-trees, eventually causing the death of the tree. Additional observations were made by Mr. GEORGE MURRAY and Professor FARMER. Messrs. H. and J. GROVES, F.L.S., communicated a paper on some *Characera* collected by Mr. T. B. BLOW, F.L.S., in the West Indies, one of which appeared to be new to science. Specimens of the plants described were exhibited.

—The next meeting of the Society will be held on Thursday, January 20, at 8 P.M., when the following papers will be read:—Dr. W. G. RIDEWOOD, B.Sc., F.L.S., "On the Larval Hyobranchial Skeleton of Aneurus Batrachians, with special reference to the Axial Parts;" and Mr. R. H. BURNE, "On the 'Abdominal-pore' in the Myxinidae." (Communicated by Professor HOWES, F.R.S., Sec. Lin. Soc.) Exhibitions:—Mr. J. E. HARTING, F.L.S. A series of photographs of the Grey Seal (*Halichoerus grypus*) at various ages, taken from life on the Isle of Jura by Mr. HENRY EVANS.

GHEENT QUINQUENNIAL.—The ordinary saloons of the Ghent Casino, large and numerous though they are, do not suffice to contain the myriads of plants which are sent for exhibition. An annexe has therefore to be erected, and the plans for the structure are, according to the *Revue de l'Horticulture Belge*, just decided on. It will be of wood, and will comprise an area of 3105 square metres (a square metre = 1.19 yard). The glass roof will be shaded by a light velarium, which is well adapted to allow the plants to be seen under the most favourable conditions as to light.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We learn that the Duke of PORTLAND has fixed Wednesday, June 8, for celebrating the fiftieth Anniversary Festival Dinner of the Gardeners' Royal Benevolent Institution at the Hôtel Métropole.

LOUGHBOROUGH AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—The opening meeting of the above Association was held on January 4. The lecturer, Mr. J. LANSDALE, of Barkley Hall Gardens, Leicester, giving on this occasion a lecture on "Soils." A very interesting and instructive lecture, over which Mr. A. HAMSHIRE presided.

BOTANICAL MAGAZINE: The following plants are figured in the January number:

Camocasia maxima, Welwitsch.—The noble West African climber figured originally in the *Trans. Linn. Society* (1866), vol. xxv., and in the *Gardeners' Chronicle*, 1896, p. 596 (figs. 105, 106). It was, it seems, discovered as long ago as 1816 by Christian Smith, a botanist attached to Capt. Tuckey's Expedition to the Congo, and whose specimens are preserved in the British Museum; t. 7572.

Paphiopedilum Victoria-Mariae, Rolfe, in *Orchid Review*, iv. (1896, p. 364).—"The time has come," says Sir Joseph Hooker, for separating generically the tropical from the temperate species of *Cypripedium*, and adopting for the former the name *Paphiopedilum*, proposed by Dr. Pfitzer. Besides the wide difference of geographical distribution, the true *Cypripedia*

being all natives of the cooler temperate regions, and the *Paphiopedila* of tropical Asia and Australia, the following characters distinguish them. In *Cypripedium* proper the leaves are cauline, thin, and plicate in veneration, the perianth marcescent, and sepals valvate in aestivation. In *Paphiopedalum* the leaves are radical, coriaceous and conduplicate in veneration, the perianth deciduous, and the sepals imbricate in aestivation, the dorsal enfolding the lateral." We must receive this pronouncement with the greatest respect and deference, but we are sorry the old genus was not retained with such sub-divisions as might be necessary. *P. Victoria-Mariae* is a native of Sumatra whence it was imported by Messrs. Sander; t. 7573.

Strobilanthes Dyerianus, Hort. Sander.—*Gardeners' Chronicle*, 1893, p. 442. Burma; t. 7574.

Lathyrus splendens, Kellogg.—See *Gardeners' Chronicle*, 1893, vol. i., p. 258; and 1897, vol. i., p. 315 (fig. 106).

Sieckingia Reichenbachiana, Rolfe, MSS. *Gorgoglossum Reichenbachiana*, Lehmann, *Gard. Chron.*, 1897, i., 346. A curious genus of the sub-tribe *Oncidieae* with clustered ovoid pseudo-bulbs, each producing a single stalked, oblong lanceolate, multicostate leaf; flowers racemose pendulous, each about 1½ inch across, with three greenish ovate acute sepals, two lateral petals as long as the sepals but deeply fringed and covered with golden hairs. The three-lobed lip is similarly fringed, its disc marked with purplish spots. It is a native of Ecuador; t. 7576.

STOCKTAKING: DECEMBER, 1897.—We subjoin our customary remarks on the trade of the country so far as it affects horticulture. IMPORTS—

these are placed at £41,332,284, against, for the same month in 1896, £43,618,851—a decrease of £2,286,567. Here may fittingly be given our usual extracts from the "summary" table of imports:

IMPORTS.	1896.	1897.	Difference.
	£	£	£
Total value ...	43,618,851	41,332,284	-2,286,567
(A.) Articles of food and drink—duty free ...	14,964,039	14,338,976	-625,063
(B.) Articles of food and drink—dutiable ...	2,501,614	2,621,073	+119,459
Raw materials for textile manufactures ...	10,352,409	8,257,787	-2,094,622
Raw materials for sundry industries and manufactures ...	3,521,583	3,794,260	+272,677
(A.) Miscellaneous articles ...	1,560,380	1,593,153	+32,773
(B.) Parcel Post ...	52,358	59,257	+6,899

Now, as to fruit, &c., take the following explanatory and suggestive figures:—

IMPORTS.	1896.	1897.	Difference.
Fruits, raw:—			
Apples ... bush.	1,186,464	410,954	-775,510
Cherries ... "	...	...	...
Plums ... "	...	604	+604
Pears ... "	8,691	11,892	+3,201
Grapes ... "	7,422	1,634	-5,788
Unenumerated ... "	53,734	8,827	+25,093
Onions ... "	452,235	435,079	-17,156
Potatoes ... cwt.	32,147	472,867	+440,720
Vegetables, raw, unenumerated ... value	£64,465	£73,921	+£8,556

Those interested in the festive season consumption of Oranges and Lemons are informed that the import of the former during December amounted to 1,816,013 bushels, against 1,773,134 bushels in the previous December, being an increase of 42,879 bushels; Lemons foot up at 139,129 bushels in the past month, against 211,452—or a decrease of 72,323 bushels as compared with the same period in 1896. In casually glancing at our market reports, the prices attached to Pine-apples in all markets will be found to be well maintained, notwithstanding the fact that the imports of recent days have increased by many thousands in number, owing to the fact that Orange-culture has

been given up in various situations, Pines taking their place; the home-grown article generally brings the highest price. Turning now to

EXPORTS,

it is unpleasant to record a fall of £1,015,578, compared with December, 1896. The total exports were £19,302,181; in 1896 the figures stood £20,317,759. The partial reconstruction of the American tariff, and our trade dispute at home, are responsible for much of this decrease, apart from the disturbing political elements.

KEW PALACE.—In one of our Jubilee numbers we gave an illustration of the old Palace at Kew, and we are now enabled to add that HER MAJESTY has decided that this building shall be opened as a public museum under the same management as Kew Gardens; and by her wish the grounds belonging to

the part of the *employés* to make two presentations—one from the indoor staff, to Mrs. J. CYPHER, and another from the outside staff to Miss CYPHER, both of which were intended to mark the appreciation by the men of many kindnesses they had received. The pleasant hours that followed furnished evidence of the happy relations that exist between the proprietor of this establishment and his workmen.

CHESTER PAXTON SOCIETY.—The opening meeting of the above Society's annual winter session was held in the Grosvenor Museum, Chester, on Saturday evening last, 8th inst., under the presidency of Mr. BARNES, of Eaton Gardens, and the opportunity was embraced of presenting Mr. G. P. MILN, the Hon. Secretary for the past eight years, with a gold watch and chain as an expression of the Society's thanks for the valuable services he has all along rendered to the Society.



FIG. 18.—KEW PALACE IN THE ROYAL GARDENS, KEW.

(Lately opened for public use at the command of HER MAJESTY.)

what is known as the "Queen's Cottage" will also be utilised in connection with the Royal gardens. The palace is close to the northern entrance to the gardens, and was a favourite residence of GEORGE III., and of CHARLOTTE, Princess of Wales, daughter of GEORGE IV., who afterwards married LEOPOLD I., King of the Belgians. Princess CHARLOTTE, then Queen CHARLOTTE, died there in 1817 in childbirth. It must be remembered that the cession for public use of the whole of the Royal gardens is due to the generosity of HER MAJESTY. The Queen's cottage is a picturesque thatched building in a sequestered nook at the Isleworth end of the gardens, surrounded by plantations and, in their season, the wild Hyacinths form a flush of colour than which nothing can be more beautiful.

PRESENTATION AT CHELTENHAM.—The *employés* of Mr. J. CYPHER, of Cheltenham, were entertained by him at a dinner on the 7th inst., in one of the glasshouses on the premises, partly in celebration of Mr. CYPHER's seventieth birthday. This auspicious occasion was taken advantage of on

PRESENTATION TO MR. J. W. WILKINSON.—A considerable gathering of those associated with Mr. J. W. WILKINSON, the Secretary of the Royal Aquarium and Summer and Winter Gardening Society, in carrying out the various exhibitions held in that building, his colleagues in administering its affairs, and of personal friends, took place at the Westminster Palace Hotel, on the 11th inst., on the occasion of a presentation to him on his approaching marriage on the 20th inst. The testimonial consisted of a massively-framed illuminated address, warmly appreciative of Mr. WILKINSON's work as the secretary of the Royal Aquarium Co., and of the esteem in which he is held. A purse of 100 sovereigns was also presented him. In the unavoidable absence of Mr. C. J. NOBLE, the chairman of the Testimonial Committee, Mr. R. DEAN, the secretary of the National Chrysanthemum Society occupied the chair.

"REVUE HORTICOLE."—M. H. DAUTHENAY is now associated with Mr. ED. ANDRE in the editing of the *Revue Horticole*, a journal which for nearly three-quarters of a century has held the foremost place in France, and has amply deserved it.

ISLE OF WIGHT HORTICULTURAL IMPROVEMENT ASSOCIATION.—This energetic body of gardeners and amateurs seem by their balance-sheet to be deservedly prosperous; but it is scarcely just to measure its usefulness by its monetary statement, much good to horticulture in the garden isle accruing, the value of which it is impossible to estimate. The syllabus of lectures for the current year is a varied one, the names of several good cultivators being found among the contributors of papers.

"THE HORTICULTURAL DIRECTORY AND YEAR-BOOK FOR 1898" is now before us, and we welcome it as an indispensable book of reference, that is destined to become well thumb-marked before the year has run its course. Besides being as complete a Directory as possible of the principal garden and nursery establishments in Great Britain, the book contains much information to which a gardener has frequently occasion to refer. In its thirty-ninth year it has become larger than ever. The book is published at the Office of the *Journal of Horticulture*, 12, Mitre Court Chambers, Fleet St., London, E.C.

"MY GARDEN DIARY FOR 1898," published by Messrs. SUTTON of Reading, is one of the neatest and prettiest things of the kind we have seen. The information given is most serviceable, and conveyed in the simplest language; whilst the commercial element is where it is wanted, and not where it is in the way.

ROYAL BOTANIC GARDENS, CALCUTTA.—The magnificent gardens across the Hooghly River have been ruled over by a long line of illustrious botanists—botanists whose reputations have been world-wide. Wallich, Roxburgh, Griffith, are names which recall the early struggles of a science to establish its roots in the East and spread its branches. Sir George King, the retiring Superintendent, has, perhaps, done more to popularise and extend the usefulness of the Royal Botanic Gardens, Calcutta (or Seebpore, to be more exact), than any of his illustrious predecessors. He has ruled over its destinies for many years. Sir George King will be succeeded by Dr. David Prain, who has, for several years held the post of Curator of the Herbarium of the Royal Botanic Gardens, Seebpore, where he has done excellent work. No better selection could have been made, and we congratulate Dr. Prain on his appointment, and the Government of India on their sagacity in putting the square man into the square hole for once. Dr. Prain is an erudite scholar, and a high authority as a botanist. He is the author of several learned botanical monographs, and we have every confidence that under his rule the Botanic Gardens will continue to extend their usefulness in the future as they have in [the] past under the guidance of the genial and learned gentleman whom Dr. Prain succeeds.

"THE GARDEN."—The monthly part, ending December, has reached us. It contains among other things effective coloured illustrations of some of MARILLAC's hardy Water-lilies. The plate of *Erigeron speciosus* gives an excellent idea of the plant as a whole, though details are wanting. It is to be hoped that the figures of *Hibiscus syriacus* may lead to the more frequent cultivation of these beautiful autumn-flowering shrubs.

MARRIAGE OF MR. BERNARD COWAN.—The marriage of Mr. Bernard Cowan, Superintendent of the South Shields Burial Board, with the widow of the late Mr. Peter Marshall, of South Shields, which took place on the 13th ult., may be matter of interest to many of our readers in Durham and Northumberland. Mr. Cowan is an accredited lecturer on horticulture for the Durham County Council, and is, we believe, the only lecturer for this year. He was the first chairman of the Newcastle and District Horticultural Mutual Improvement Association, and is one of the vice-presidents of the English Arboricultural Society. He is also secretary of the South Shields and Northern Counties Chrysanthemum Society.

PRESENTATION OF AN ADDRESS TO MR. HUGH DICKSON, OF THE ROYAL NURSERIES, BELFAST.

A NUMEROUS company of the friends of Mr. Hugh Dickson, of the Royal Nurseries, at Belmont, Belfast, assembled recently in that city to do him a well-merited honour as their guest at a complimentary dinner, and to present him with a handsomely illuminated address, mainly in recognition of his invaluable services to the Ulster Horticultural Society. Mr. Dickson, who is so widely known and popular among rosarians in the United Kingdom, is the younger son of Alexander Dickson, a Scotchman, from Midlothian, who, after being employed for some years as a gardener, established himself as a nurseryman, in 1836, at Newtownards, co. Down, where Hugh first saw the light, and received his early training. A well-earned success in business had not absorbed all Mr. Dickson's time and energies, and none has been more ready and willing to lend a helping hand, when such was required, to promote the interests of horticulture in all its branches among his friends and neighbours in the north of Ireland or elsewhere.

Chiefly at the inspiration of Mr. Dickson, the Ulster Horticultural Society was started afresh at Belfast about ten years ago. Since then its progress has been a continued and marked success, in all of which he has been the moving spirit. The complimentary dinner was presided over by Thomas Shaw, Esq., J.P. who in proposing the toast of the evening, "Their Guest," said he warmly congratulated their guest on the thoroughly representative character of that large assemblage of his friends.

The toast having been cordially responded to, Mr. Dickson, who was enthusiastically received on rising, expressed his heartfelt thanks to his many friends for that marked expression of their goodwill. He was conscious of the fact that the compliment paid to him that evening was initiated by the Horticultural Society, and he rejoiced to see so many members of that body present. It was unnecessary for him to speak of the success with which that society had carried on its operations. It was, however, right for him to say that a more united body than the committee of the Ulster Horticultural Society it had never been his privilege to work with.

NURSERY NOTES.

A "NEW YEAR'S SHOW" AT READING.

LEAVING London soon after 8 A.M., early in the present month, there was no snow, nor hoar-frost; no hard, clear roads—not a circumstance, in any degree suggestive of January, but rather of April. When Reading was reached the air was clear, and the sun bright and warm, but Messrs. Suttons' "flower show" commanded our admiration for all that. Previous to this we made a call at the establishment in the Market Place, where the roguing and cleansing of seeds, by hand as well as by the wonderful machines, was in full progress. There appeared to be Peas sufficient to sow the empire over, and we watched the women as they hand-picked these and other seeds, as French and Broad Beans, Scarlet Runners, &c., each on the outlook for "wastes;" for, in proportion to the number they found, so would their earnings be.

Following our guide to another room, half-a-dozen men were weighing and putting Peas into quart, pint, and half-pint paper bags, as if for a wager. We will omit to give figures of the quantities per day so dealt with, lest we be suspected of exaggeration; and further, interesting as these items were, we had come to see the new year's show at the nursery, and to enjoy it. What a picture of Flora in winter it presents! filling each house, and overflowing, so it seemed, until the effect was noticed as soon as the entrance to the nursery was gained. The display was profuse enough, sufficiently bright and many hued, to impress the visitor with the utmost sense of satisfaction, notwithstanding every house was filled with bright sunshine. From the "spectacular" point of view the success was unqualified. We venture to think also, that if the visitor has ever studied the

capacity Nature possesses to effect change in a plant, something we have grown to describe as evolution, he will be sure to do so as he admires the beautiful and

HIGHLY CULTIVATED PRIMULAS,

in which differences in leaf and flower and habit have been induced by selection, and by excessive cultivation from the species *P. sinensis*. In foliage alone, the types known as Fern-leaved, Palm or plain-leaved, and moss curled-leaved, are very distinct from each other, not to mention minor differences exhibited by the plants, such as larger or lesser-sized leaves, and the average number of leaves to a plant. Flowers are single and double, and in colour there is exceeding variety, embracing, so it would seem, all tints but yellow and true blue. In regard to the last-mentioned colour, although the ideal blue *Primula* has yet to be raised, we appear to be gaining ground in that direction, and a variety we shall mention presently is a pleasing, if not a "true" shade of that colour. In the case of the Reading *Primulas* they have been the care of a cultivator who has spent the greater part of his life in a study to improve and cultivate a few species of plants of which the Chinese *Primrose* is one. In the pursuit of this work, he has learnt much of the power the cross-fertiliser may yield, and he has learned mere, and that is, that there are limits to his field of influence. For a long time it is possible that nothing but success follows the efforts he may make to improve a type or to "fix" a characteristic, but there comes a time, sooner or later, when he reaches the limit in that direction, and further steps he may take are backward rather than forward. In his own words—"If we only knew when to stop!" But apart from the knowledge that comes from intimacy with certain principles, and from actual observation during many years (which is not conclusive in any case), there is no certain indication; and in seeking to further improve a flower that has responded to previous coaxing, may be sterility is reached, which is one of the troubles that the cross-breeder of florists' flowers has to guard against, particularly if the stock has to be increased from seeds, as *Primulas* are. But the cross-breeder may see qualities of leaf, of flower, and of habit, in several different plants, and by successive crossings conducted on the principle that "like begets like," he may subsequently succeed in embodying these characteristics in one plant.

High cultivation, too, plays its part, and to this should be ascribed the variations that occur, and that cannot be traced to cross fertilisation. We were interested to hear that the strain known as "Giant *Primulas*" was not obtained by intelligent crossing, but first appeared unexpectedly. Its characteristics are chiefly these: the plants produce fewer leaves and fewer flowers, but the flowers are larger, and the habit of the plants is stronger, so much so, that they are easily identified when not in bloom. Of course, there are many varieties of the Giant strain now, and various colours, but if one of them be crossed back again to an ordinary *Primula*, its influence is not perceptible, and the older type seems to exert exclusive potency. Just so did the variations in the foliage of the *Primula originate*, being due to the effects of cultivation, and a parallel may be seen in the variations that have occurred in the leaves of the Brassicas.

In colour, perhaps, the florist can achieve most, and so far as the *Primulas* are concerned, the male parent is thought to be most potent in effecting change. It is interesting, also, to study the time that may elapse between the cross being made, and any visible effect arising therefrom. Our attention was drawn to several cases in which two plants with well-marked characteristics had been mated, and the issue from seed showed but little evidence of the fact. Experience, however, has taught the cultivator that this variation he has sought may appear in the second or third generation of the seedlings. The cross has been effected; the white or the pink *Primula* has been wedded with the "Carnation-flaked;" and though the influence of the latter is latent for a time, it will be extremely likely to appear subsequently.

Having been tempted to write thus far regarding

the cross-breeder's part in *Primula* development, we will briefly refer to some of the varieties that are in commerce—"fixed," of which seed may be purchased, and some of them have been favourites for a long time.

Taking the single-flowered ones first: *Rosy Queen* is an instance of a variety raised sixteen years ago, and still a valued one; it was the first Fern-leaved variety with pink or rose-coloured flowers. The foliage is light green, and the flowers large, of a very beautiful rosy-pink, and abundantly produced. Since 1879 the variety *Pearl* has been constantly good, and has improved; its large white flowers acquire a delicate pink with age, and it is well known and popular. *Purity*, another white-flowered one, but with beautiful dark green Fern-like foliage, is one of the very best mid-season varieties. The flowers are large and pure white, with crimped margins; stems very dark coloured. A grand late-flowered one is *Brilliant Ruby*, one of the very first-class red *Primulas*, of dwarf and capital habit. It has superseded *Ruby King*. There are two excellent white varieties in *Snowdrift* and *Royal White*. The former is exceedingly early, and is a perfect *Primula*, bearing abundance of pure white flowers over pretty Fern-like foliage. By reason of its large stigma, the blooms do not readily shake off. *Royal White* has pure white flowers of large size, good substance, beautifully fringed, and the foliage is dark-green and plain. *Reading Blue* is most praiseworthy, and if not so decided a "blue" as that afforded by some other species of flowers, it is nevertheless a tint that should be welcome in any greenhouse in January. *Reading Scarlet*, *Brilliant Rose*, and *Gypsy Queen* are included in the specialties of the single-flowered type.

Turning to the double flowers: in *Carnation-flaked* we have perhaps the strongest habit of any of the varieties. The foliage is strong and dark, and it flowers abundantly, being pure white, more or less flaked with bright carmine. A good pink is *Double Pink*, and very free. *Double Blue* is remarkable for its fine trusses of flowers of decidedly pretty lavender or pale blue colour—we strongly recommend it. *Double White* is a very floriferous early, pure white variety, that should be useful as decorative plants or for providing flowers for cutting. *Double alba magnifica*, with moss-curled foliage, has prettily fringed flowers, and may be recommended. *Double flowers* in bright scarlet, and effective crimson, are also equally good.

(To be continued.)

PARADISE AND VICTORIA NURSERIES.

The changes that are quickly taking place, and which few gardeners and horticultural amateurs whose memories carry them back a dozen years can fail to note in the species of plants cultivated in nurseries, are particularly noticeable in Messrs. B. S. Williams' establishment at the foot of Highgate Hill. Orchids and Palms still form the backbone of the collection of plants grown there, and very successfully are the plants cultivated under the adverse conditions of the atmosphere, and the relative lack of sunlight due to fog at times during the autumn and winter, and to coal-smoke at almost all seasons.

A visit recently made, revealed sad evidences of the effect of fog, in the absence of expanded blooms or even half-opened flower buds, and in the abundance of yellow and withered flowers and buds and old leaves, the latter especially noticeable on *Cattleyas* and *Lælias*.

A few sunny days, will, however, put a more cheerful aspect on the plants. Plenty of flower-spikes just making themselves visible, could be observed on *Odontoglossum crispum*, of which the nursery can boast of many very superior forms, on *Coleogyne cristata*, *C. alba*, *Lælia Gouldiana*, numerous *Cypripediums*, and *Lælia anceps alba*. We remarked the old greenhouse in which large plants of *Camellia* used to be grown, to very small advantage to the owners, is now filled with species of Palms suitable for ordinary decorative uses. This is a change for the better, although many persons will deplore the loss of the *Camellias*, which are, pity be it said, less fashion's favourites now than of yore. Similarly, instead of speci-

men *Azalea indica*, small stuff, 1½ foot in height, abundantly furnished with flower, filled an adjoining glasshouse; the former evidently made in Belgium. *Azalea mollis* in quantity, and masses of Tulips and Hyacinths grown in boxes in a wholesale manner for the purposes of furnishing vases, jardinières, &c., were noticed in houses that only a few years ago teemed with hard-wooded plants in variety.

The handsome variegated, narrow-leaved *Dracena Douceti* was noticed in some quantity, an excellent decorative plant that stands uninjured in rooms for a length of time; Crotons in useful sizes; *Aspidistra* with clean unblemished foliage were observed in large numbers; also *Cyperus alternifolius gracillimus*, a very slender habited form, good as a table plant, and plenty of healthy Palms, such as *Kentias*, *Livistona*, *Rhaphis*, &c., fit for decoration, are among the more prominent part of the stock.

HOME CORRESPONDENCE.

WHAT IS CYCLAMEN PERSICUM?—This is, I know, a question which has often been discussed, and on which competent botanists have probably made up their minds long ago. We are told, on the authority of *Index Kewensis*, that *C. persicum* of Miller—the greenhouse Cyclamen of English gardens—is *Cyclamen latifolium* of Sibthorp. My attention has again been directed to this question, because in an article on the Persian Cyclamen recently published in the Royal Horticultural Society's *Journal* (December, 1897, p. 270), I find this statement:—"Last season my memory (concerning the poorness of the early strains of Persian Cyclamen) was refreshed by a sight in Messrs. Sutton & Sons' Reading Nurseries of a batch of *C. persicum*, which had been imported direct from Persia." Now, the best authority on the flowers of Western Asia I have always found to be E. Boissier. He tells us in his *Flora Orientalis* that *C. latifolium* (of which he says *C. persicum* of Miller is the garden form), though common in Asia Minor and Palestine, is not found in Persia in any of its forms. The only Cyclamen which E. Boissier mentions as found in Persia is *C. Coum* (Miller's). So if the Cyclamens mentioned as seen at Reading really came from Persia, they belonged to *C. Coum* (Miller), which has never been identified with any form of florist's Cyclamen. Another Cyclamen, *C. græcum* (Lin.), common in Greece, but not found anywhere in Asia, was called *C. persicum* (Miller) by Sibthorp, who seems to have confused it with *C. latifolium*. Neither *C. græcum* nor *C. latifolium* is hardy in English gardens. *C. Wolley Dod*, *Edgc Hall, Malpas*.

ACÆNAS.—One is pleased to see these mentioned by M. Correvon in the *Gardeners' Chronicle*, p. 23. It is to be hoped that his valuable note will lead to a little more attention being paid to the Acænas, because of their value in the Alpine garden, and as carpet-plants for covering the ground under tall plants. *A. microphylla* has few rivals as a plant for low, moist spots in peaty soil, especially when it is in fruit. I would especially refer to the two newer species which are mentioned in M. Correvon's note. These, with some others, Irish readers will be able to see at the Botanic Garden, Glasnevin, and they and others who may chance to see plants elsewhere, will agree with me in saying that the beauty of *A. Buchananii* is not exaggerated in the article to which I refer. I saw it first in the rock-garden at Glasnevin, being much struck with its colour, and the beauty of its leaves, and of its habit. *A. glabra* I have in my garden here, but it is, although pretty, not to be compared with *A. Buchananii*. One is glad to know that there is now a prospect of the new Acænas being readily obtainable from the ordinary sources of supply. *S. Arnott, Carsethorn, by Dumfries, N.B.*

HAMAMELIS, OR WITCH HAZELS.—This small genus of hardy-flowering shrubs is little known in gardens, consisting, as at present, of only three species. One, a native of the United States, and the other two from Japan, and all are deserving of culture in the shrubbery, flowering, as they do, at this time of the year, when little else is to be seen in flower, the whole of their leafless branches being covered with the curious and pretty flowers. The oldest and commonest species in this country is *H. virginica*, which, as its name implies, hails from Virginia, from whence it was introduced so far back as 1736. It flowers

from October to March, with the flowers, being of a deep yellow colour, and disposed in clusters. After the petals fall, the calyx remains till the leaves appear, in April and May. This species was described in *Botanical Magazine*, 6684, and it is sometimes met with under the name of *H. macrophylla*. *H. arborea*, introduced in 1862, is very rarely met with in this country (see *Masters in Gardeners' Chronicle*, February 7, 1874, fig. 47). It is the best of the *Witch Hazels* as regards the beauty and size of the blossoms, and makes, in its native country—Japan—a small tree from 15 to 20 feet high. A plant is now in flower at the Woking Nursery, having clear yellow flowers, with deep claret calyxes. This was, I believe, erroneously described in *Botanical Magazine*, 6659, as *H. japonica*, which differs greatly, having paler flowers, and partaking more after the habit of *H. virginica*. This species, *H. japonica*, according to *Nicholson's Dictionary*, has an allied form, known as *H. Zaccariniana*, with paler flowers and greenish-brown calyxes, but this I have never seen. [It was shown at the last meeting of the R. H. S. by Messrs. Veitch. Ed.] All are deserving of extended culture. They will flourish in any good garden soil, especially so in a moist sandy soil, such as we have at Woking. *E. S., Woking*.

A HALL FOR HORTICULTURE.—Mr. Divers is surely out of his depth when he refers to the "profits" of the Aquarium Company. He can have no personal knowledge on this point, and he repeats the imaginings of others. Mr. Divers also knows nothing of the heavy expense the Royal Aquarium Society is put to in providing for the National Chrysanthemum Society's exhibitions; all the necessary staging, labour, lighting, cleaning, &c., saying nothing about printing and posting thousands of bills, advertising, sandwich men, paragraphing the press, entertaining the representatives of the papers (!), and many other ways. Nor does he think of the many free admissions to the shows, which swell the attendance; an army of their own servants and attendants; artists and their attendants, as well as those at the side shows, shareholders, season-ticket holders, the numerous representatives of the press, 1500 passes of the National Chrysanthemum Society carrying the privilege of free admission on the three days of each show, and on the occasion of that held in November, some 300 exhibitors' passes. Further, there has to be deducted the average attendances on ordinary days, and then the margin has to defray the sum of money given to the National Chrysanthemum Society, and the heavy expense of each exhibition. Then, among the further advantages enjoyed by the National Chrysanthemum Society is the privilege of purchasing one-shilling admission-tickets at half-price, a privilege which, during 1896, brought to the exchequer of the Society the sum of over £50. In addition, is enjoyed the privilege of letting large portions of the building during the shows, and taking payment for the same. In 1896 this realised for the Society over £100. Accommodation is provided for all the meetings of the Floral Committee, and all members have free admission to these; there is also furnished gratis a great deal of storage-room, for which the Society would otherwise have to pay. Whether the gardening community is interested in the entertainments is a matter of opinion. The contributions of members go but a short way towards defraying the working expenses of the Society; and the sum of £55 was added to the Reserve Fund at the end of 1896. As to the "further encouragement of Chrysanthemum culture," Mr. Divers would never have made such a statement had he thought about the matter. No other special society can show such a record of work, furthering the cultivation of the particular flower it takes in hand, as the National Chrysanthemum Society furnishes in the case of the Chrysanthemum: its four annual exhibitions, its Floral Committee, its Classification Committee, its Conference Meetings, its invaluable catalogue, its 150 affiliated societies, its very extensive helpful correspondence, &c.; what are all these but a most valuable catalogue of helps in the cultivation of the Chrysanthemum! His deliberate statement that a "better class of persons would patronise the shows if held under better conditions" is falsified by the fact that such do attend, and in large numbers. I, who have had something to do with the arrangements of many London shows, can assert that the prime cause of failure was, that the public did not attend them, and in London no organization, not even the Royal Horticultural Society, can afford to hold exhibitions which do not pay. Let Mr. Divers, and those who sympathise with him in his attitude towards the

Aquarium, try a show in some place in London, depending upon the gate-money to re-imburse them for their outlay. The result would be disastrous, even if they made their attempt with the November exhibition of the National Chrysanthemum Society at the Agricultural Hall, or Earl's Court. *Richard Dean, Ealing, W.*

VIOLAS.—In my opinion, Dr. Williamson does not do justice to the subject. In my garden on the date he mentioned I had 200,000 plants in full bloom, and exhibited on the 10th as fine a lot of Pansies and Violas as one would wish to see, all grown in the open. To-day (January 1, 1898), I could pick a large quantity of fine blooms. My Violas start to bloom in March; in April I could exhibit them, and in the following month they are in perfection, and continue to flower profusely till the end of October. Many of those Mr. Williamson mentions I consider as being quite out of date, and I would very much like to know his opinion of *Britannia*, a magnificent blue; Mrs. J. Donnelly, *Blanche*, white; *Pembroke*; a yellow *Kitty Hay*, neither of which he mentions. Then, again, the variety *Mrs. Richard Hare*, a greatly improved Countess of Kintore. How many can grow a good bloom of *A. J. Rowberry*? It is a beautiful flower when well grown, but how very little use it is for bedding, which, in my opinion, is the proper object of a Viola. I trust Dr. Williamson will visit me during the coming seasons, my garden being open on Saturdays to lovers of the Viola, when I think the Violas will offer many surprises. *Wm. Sydenham, Tamworth*.

APPLE AND PEAR-TREE PRUNING.—Pressure of work has prevented me remarking earlier upon Mr. Kettle's criticism of Mr. Ward's advice on pruning (p. 448). Perhaps Mr. Kettle will be good enough to answer the following questions. He asserts that a great many trees would be far more shapely and fruitful if not pruned at all during the first half-dozen years of growth, and after that time he is sure they would need but little. Will maiden-trees of themselves form shapely specimens? How is the tree to make the necessary main branches? Will they form in a proper manner, even only at the right places or positions, and if so will they be of uniform strength? What does Mr. Kettle mean by spreading varieties such as *Quarrenden* and "rigid ones, as *Blenheims*?" I most certainly have found the latter much more spreading than *Quarrenden*, in fact one of the most spreading of any kind I know, and if not pruned, it will throw long horizontal branches without a break, whereas *Quarrenden* is much more erect. I know trees will bear more quickly if left alone, but then there is soon an end of the growth, and I would rather have branches first and fruit afterwards. Mr. Kettle would teach "old hands" to throw away the knife because others do not know how to use it properly. In Cornwall here, there are too many instances of such practice, and hundreds of pounds have been wasted because old trees have not received the necessary pruning during the first six years. *Charles Hott, Hott Inst. Cornwall C.C., Truro*.

BARBERRY AND WHEAT MILDEW.—It positively makes one feel quite young again to hear any person expressing a doubt about the connection between *Oidium Berberidis* and *Puccinia graminis*. Mr. Morgan speaks of the common Barberry being planted by millions for hedges in many parts of New Zealand. Whether the Barberry plant will act differently in New Zealand to what it does in Europe, our friends upon the other side of the globe will soon see for themselves. It is just possible, however, that the teliospore of the *Puccinia* may not germinate so freely with them as they do with us, owing to their "winter" temperature not being sufficiently low. I have tried on two occasions to get the teliospore of *Puccinia graminis* from Australia to germinate in England, but I have not succeeded. The first attempt was made nine years ago, when Mr. D. Macalpine was good enough to send me material, but I was quite unsuccessful. Last year he was kind enough to send me a further supply; but although I kept the straw out-of-doors during the latter part of last winter and the spring of 1897, I was equally unsuccessful. Is it probably like the seeds of some of the higher vegetables, the teliospores require not only a period of rest, but also an exposure to a certain degree of cold? Perhaps one should not be too positive because of having had two failures, but the point is certainly one worth attention by the numerous practical botanists who are now to be found in all quarters of the globe. *Charles B. Plowright, M.D., King's Lynn, Jan. 9*.

PEAR DUCHESS D'ANGOULEME. — Your correspondent "H. H. R." (p. 448, vol. xxii.) says, "The remarkable experience given in your issue of Dec. 11 last concerning the above Pear as grown upon a wall seems to indicate that there is no complete connection between the treatment described and the splendid results obtained." How does "H. H. R." arrive at this conclusion? My own opinion is, and I think fruit-growers generally will agree with me in saying, that there is "a connection between the treatment described and the splendid results obtained," when coupled with other circumstances. (1) The tree in question bore no fruit in 1896; (2) it was root-pruned in the September of that year in the manner indicated in the *Gardeners' Chronicle* for Dec. 11 last (p. 419), the old and, perhaps, sour soil being replaced with a mixture of good loam and rubble, in the proportion of four parts of the former to one of the latter. (3) The tree thus operated on was already fairly well provided with fruit-buds, and these concurrently with the emission and pushing into the new soil of a host of young roots had considerably increased in size and solidity before the tree shed its leaves in November, with the result that clusters of strong, well-developed flowers appeared on the tree the following spring, which set freely, and in due time attained the dimensions set forth in the note and illustration given in the issue of the *Gardeners' Chronicle* referred to above. (4) The tree thus operated on having thoroughly established itself in the compost mentioned above, and being kept well supplied with water at the roots during the period of active growth, combined with the tropical-like weather which prevailed the whole time of the fruit's growth, go to show a "complete connection between the treatment, and the splendid results obtained" from the tree in question. And (5) to the favourable situation of Stradey Castle-gardens and their nearness to the sea, when taken in connection with the skilful and generous treatment which the gardener (Mr. Thomas Lucas) bestowed upon the tree and the exceptional heat of the sun during the summer and early autumn months may be attributed the high quality of the fruit. "H. H. R." says "The particular variety of Pear is hardly one of merit as grown in this country, as in good fruit-shows it is usually conspicuous by its absence, or very moderately represented compared with other varieties, or to the splendid examples sent us annually from France," adding, "The crop described is thus even more remarkable, and in contrast to the statement in the catalogues of the well-known Sawbridgeworth firm to the effect that this variety is usually insipid from a wall." The above remarks only go to show that all the more credit is due to the gardener who produces such remarkably fine fruits—not only "remarkable" in size, but also in appearance, being grandly coloured, and fine in flavour. The absence of good examples of Duchesse d'Angoulême Pear from good fruit-shows must not be looked upon as being the fault of this variety, but rather as failure on the part of cultivators to stage creditable examples of it. "H. H. R." unwillingly speaks most favourably of the Duchesse d'Angoulême Pear in referring to the "splendid examples of it sent us annually from France," unmindful of the fact that a few lines higher up in his note, he says "it is hardly one of merit,"—"remarkable" reasoning this! All the same, it serves to show that the variety is "splendid" when grown under favourable conditions as regards soil and climate; and when grown under conditions the reverse of these, it "is hardly one of merit;" the conditions under which the fruit was produced being at fault in the latter case, and not the variety, I candidly admit being unable to understand the validity of the extract from the Sawbridgeworth catalogue, to the effect "that this variety is usually insipid from a wall!" How is this? The flavour of Pears and other hardy fruits gathered from trees occupying positions on walls having south and west aspects being invariably superior to that possessed by fruits of the same kinds and varieties obtained from trees growing in the open, whether they be standards, pyramids, or bushes. "H. H. R." is quite right in saying that the district (Llanely) in which the Stradey Castle Pears were grown resembles more the conditions of France than this (Forest Hill) part of the kingdom. I may here say that Llanely and Bournemouth (where the second-best examples of the Duchesse d'Angoulême Pear coming under notice were grown) are about the same distance from, and pretty close to the sea, Bournemouth being about one degree farther south. In reply to your Correspondent's questions; root-pruning, as already stated, was done in September; the tree was growing in ordinary garden-soil, but the Carrot-shaped roots

had pushed far down into stoney and heavy soil; the tree is grafted on a Pear stock, and it had not actually failed in fruitfulness excepting in 1896, a few fruits having been taken from the trees every autumn with the exception indicated, these being of ordinary size and appearance. The tree which was root-pruned in September, 1896, is now (Mr. Lucas informs me) well-furnished with large solid fruit-buds. *H. W. Ward, Rayleigh.*

THE ROSARY.

"THE ROSARIAN'S YEAR BOOK."

This little volume opens with a portrait and a sympathetic notice of the life and career of the Rev. Joseph Pemberton. Miss Muriel Grahame's account of a Rose shew betokens observation, and a keen sense of humour. Mr. Foster-Melliar's articles are always full of matter, and trustworthy—his article on yellow Roses is no exception. The editor sketches the progress of the Society in 1897. Mr. A. Piper gives numerous illustrations of Rose sports, which will be valuable for evidential purposes. Mr. George Paul discusses the question of showing "trebles" at Rose shows. If the treble meant a truss of three Roses, one in advance of the other two, we should uphold the practice. If it be taken to mean, as it generally does, three fully developed but separate blooms of the same age, we do not see the special advantage attaching to the number three. Mr. Mawley has no fault to find with the weather, recording the season as one exceptionally free from detrimental influences.

SOCIETIES.

ROYAL HORTICULTURAL.

JANUARY 11.—What may be termed the New Year's Meeting of the Committees of the Royal Horticultural Society took place on Tuesday last in the Drill Hall, James' Street, Westminster. A beginning for the year was made, and a satisfactory one, for it was not expected that the capacity of the building would be tested on this occasion, though this may very possibly be the case at the next meeting. The display on Tuesday last was made up in large measure by two extensive collections of Chinese Primroses, and two groups of Cyclamens, all of which were commendable from the standpoint of quality, and they presented a very gay picture indeed. Orchids and other plants were not numerous, but a pretty group of ornamental foliage and flowering plants was present. Not a single Certificate or Award of Merit was recommended by the Floral Committee, and but one by the Fruit Committee. There was a collection of Apples from an amateur, and a number of dishes of Apples in competition for the prizes for flavour. Three Certificates were awarded by the Orchid Committee. At 3 o'clock a meeting was held for the election of new members to the Society, when a large number of names were submitted and duly elected.

Floral Committee.

Present:—W. Marshall, Esq. Chairman, and Messrs. Jno. Laing, H. B. May, R. Dean, Chas. T. Druery, J. H. Pitt, J. F. McLeod, Jas. Hudson, Jas. Walker, J. T. Bennett-Poë, J. D. Pawle, Chas. E. Shea, Chas. E. Pearson, Geo. Gordon, Edwin Beckett, Chas. Blick, Harry Turner, Geo. Paul, and Jno. Fraser.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, Chelsea, exhibited sprays of the Witch Hazel (*Hamamelis arborea*), and a paler coloured flowered one name *H. japonica* Zuccariniana; also beautiful sprays of *Carya elliptica*, and a lovely collection of flowers from their hybrid greenhouse Rhododendrons.

A collection of Primulas from Messrs. H. CANNELL & SONS, Swanley, Kent, quite filled a side of one of the large tables, with nice plants in 5 and 6-inch pots. Eynsford Red and Cannell's Pink, both well-known and popular varieties, were shown. Duchess of Fife, with Fern-like foliage, and fine pink flowers, with yellow eye, is very pretty. Swanley Yellow is a variety in which the yellow eye extends unusually over the flower, and is as near being yellow as any we have noticed. Distinction is a good rosy-crimson flower. Emperor Improved, a magnificent carmine-pink, with plain foliage. Swanley Blue, also with plain foliage, very prettily serrated, is effective among the other colours. White Perfection was well flowered, and the blooms stood boldly above the strong Fern-like foliage. My Favourite is a pink variety, as is Pink Queen. The colours in all of them were bright and pure. In addition to the above, Messrs. Cannell showed some fine plants of the old double varieties, such as Earl

Beaconsfield, Annie Hillier, King of Purples, Mrs. R. Crabbe, Marchioness of Exeter, &c. (Silver Flora Medal).

Mr. JNO. R. BOX, West Wickham and Croydon, made a great display with Chinese Primulas, furnishing at least half of one side of a long table with a collection of capitally-grown plants, most of them in 6-inch pots, and each carrying a couple of dozen or more strong leaves. The first show of blooms were just developed. Some of the different colours were named as follows: Carmine Queen, a Fern-leaved plant, with moderately deep carmine flowers; The Queen, also a Fern-leaved type, with strong flower-spikes, flowers opening white, afterwards assuming a pink-blush; Margaret, apparently a giant strain, with large, crimped flowers—white, shaded mauve, and a distinct eye. Marquis of Lorne, Fern-leaved type, rosy-magenta flower; Cannell's Pink, a beautiful variety, with abundance of pretty flowers; Emperor, Fern-leaved, with carmine-pink flowers; White Perfection, Fern-leaved, abundantly flowered, the petals crimped considerably; Wickham White; Rosamond, deep pink; Queen of Primulas, white-flowered, and plain foliage; Freshly, having rather small flowers of deep crimson; Wickham Beauty, one of the best shown—it has plain foliage and large, beautiful flowers, of delicate blush; Surprise, a Fern-leaved, carmine-flowered variety; and Princess Mary, white, were included. The cultivation was good, but the development of the foliage excessive, and the colours of the flowers were not so bright as when grown in the country (Silver Flora Medal).

Messrs. SUTTON & SONS, Reading, showed strains of *Cyclamen persicum* (latifolium), which made a very gay display indeed. The plants were well flowered, and the blooms appeared well above excellent and prettily-marbled foliage. All the plants were raised from seeds sown twelve months ago, and no supports were needed. Vulcan, the darkest coloured of those staged, and Salmon Queen, attracted much attention; and a few blooms of Purple Queen, resembling a colour frequently occurring in Sweet Peas, were equally remarkable. A few monstrosities shown by Messrs. Sutton may be the beginnings of greater variation among Cyclamens than was expected. One of these had so many as ten petals (Silver Flora Medal).

Another collection of Cyclamens was exhibited by Messrs. HUGH LOW & CO., Bush Hill Park Nurseries, Enfield. The strains exhibited a nice variety of colours, all of them bright and distinct, and the flowers were of good form and large (Silver Banksian Medal). The very bright Carnation Water Scarlet, which we have noticed before, was again shown by Messrs. Low.

Messrs. JNO. LAING & SONS, Forest Hill Nurseries, London, S.E., contributed a very pretty group of miscellaneous foliage and flowering-plants, among which was noticed a plant of *Nepenthes mixta* X, with fine pitchers. The plants generally were bright in appearance, well-grown, and of choice species (Silver Flora Medal). Messrs. J. LAING & SONS also exhibited a few plants of *Cordylone* (*Dracuna*) excellens, a green-and-white-leaved variety, the variegation following the margins of the leaf, which is about 3 inches wide at broadest point, and 12 inches or more long; also a pretty narrow-leaved *Dracuna* named *Distinction*.

Maranta Wingfieldiana, shown by Mrs. WINGFIELD, Amphilil House, Amphilil, is an effective decorative plant.

Mr. T. S. WARE, Hale Farm Nurseries, Tottenham, showed several pansies of *Narcissus meocephalus* (*Corbularia*) in bloom; also *Fritillaria oranensis*.

F. W. MOORE, Esq., Botanic Garden, Glasnevin, sent sprays of *Chimonanthus fragrans*; also flowers of *Iris stylosa* var. *Empress Elizabeth*.

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. JAS. O'BRIEN (Hon. Sec.), De B. Crawshaw, H. Ballantine, W. H. Young, Henry Little, H. J. Chapman, T. Statter, T. W. Bond, E. Hill, J. Douglas, and S. Courtauld.

The uncertainty about the weather keeping mild, doubtless influenced some prospective exhibitors, with a consequent falling off in the number of entries.

Captain HOLFORD, Westonbirt, Tetbury (gr., Mr. A. Chapman), exhibited a very interesting collection, more than fifty varieties of *Cypripedium*, testifying alike to their usefulness as winter flowers, and to the good methods of cultivation followed at Westonbirt. Of some varieties there were several flowers. We noted *Cypripedium* X *Statterianum* (*Spicerianum* X *veixillarium*), with its large bright rose-coloured upper sepal quaintly folded back; a fine variety of *C. X radiosum*, a very handsome set of forms of *C. X Leeanum*, *C. X Niobe*, and *C. X Niobe superbum*, the latter having a very fine rose-purple-veined upper sepal; a showy set of varieties of *C. insignis*, remarkable among which were *C. insignis* Unique, a very distinctly marked flower; and *C. i. citrinum*, with clear yellow and white flowers of the *C. i. Sanderianum* class; *C. X Picheirium Williams' var.*, a massive and well-formed flower; a pretty hybrid between *C. X insignis*, Chantini and *C. Boxall*, some very handsome *C. Charlesworthi*, *C. X enanthum superbum*, *C. X Sallieri Hyeanum*, and in addition several brightly coloured *Selenipediums*, and some fine sprays of richly-coloured *Laelia autumnalis* were shown. The stand was awarded a Silver Banksian Medal.

Messrs. F. SANDER & CO., St. Albans, showed *Cattleya Trianae* Sanders, a charming variety with finely-formed flowers, the sepals and petals of a delicate pearl-white, the front of the lip of a rich, dark, velvety purple (Award of Merit); also *Laelia anceps atro-rubens*, a rather small but very dark rose-crimson variety, of distinct features; *L. a. Dawsoni*, *L. a. Sanderiana*, *L. a. Hilli*, varieties of *Cypri-*

pedium \times Calypso, and Lycaste Skinneri, Dendrobium Johnsoni, and D. \times Dulce, Oakwood variety.

Messrs. HUNT LOW & Co., Clapton, staged a group in which the central plant was the new *Cypripedium* \times F. S. Roberts, a hybrid of *C. niveum*, but the other species used is not known. In general appearance it somewhat resembled *C. \times Cowleyanum* (*niveum* \times *Curtisii*). The flower is white, with rose-coloured flush, and dotted lines on the upper sepal and petals, and a clear rose-purple tinge on the face of the lip (Award of Merit). Messrs. Low also showed a light form of *Odontoglossum Wilckeanum*, some good *O. crispum*, *O. Halli*, *O. Andersonianum*, *Cypripedium* \times *Lathamianum*, *C. \times Bellona*, &c.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), showed *Lelia anceps Amesiana*, Crawshay's var., distinguished from the original by its broader petals; the whiter bases, and brighter purple tips to the sepals and petals, and especially by the side-lobes of the lip being marked with similar dark claret-erimson colour to the front-lobe (Award of Merit).

C. L. N. INGRAM, Esq., Elstead House, Godalming (gr., Mr. T. W. Bond), showed *Cypripedium* \times *Magnet* (insigne *Chantini* \times *Boxalli*), a fine flower of the *C. \times nitens* class, the upper sepal being handsomely spotted with chocolate-brown in the lower part, and purple in the upper half, the tip being pure white.

FRED. HARDY, Esq., Tyntesfield, Ashton-on-Mersey (gr., Mr. T. Stafford), again showed a plant of *Cypripedium insigne Sandersi*, about which some doubts had been raised. The committee agreed that it was the true variety. Mr. Hardy also showed *Cypripedium* \times *Calypso*, and *Odontoglossum Andersonianum*.

ISAAC CARR, Esq., Poolemeade, Tiverton-on-Avon, showed some darkly-coloured hybrid *Cypripediums*; and F. A. REHDER, Esq., The Avenue, Gipsy Hill (gr., Mr. Morris), showed *C. \times Rehderianum* (*Savageanum superbum* \times *purpuratum*), a very neat flower, in which the fine rose-purple colour of the upper sepal was very attractive.

F. W. MOORE, Esq., Glasnevin, sent out flowers of *Masdevallia Schroderiana*; and FRAU IDA BRANDT, Zurich (gr., Mr. Schlecht), sent spikes of *Lelia autumnalis* and *Acerides Vandarum*, the latter being grown in a cold house.

At the meeting, the coloured drawings of the Certificated plants of 1897 were submitted to the scrutiny of the members of the committee, who expressed their approval, and passed a resolution to continue the work.

Fruit Committee.

Present:—Philip Crowley, Esq., Chairman; and Messrs. Geo. Bunyard, Jos. Cheal, A. F. Barron, T. J. Saltmarsh, Alex. Dean, J. W. Bates, W. Farr, C. Herrin, W. J. Empson, Geo. Wythes, H. Balderson, F. Q. Lane, G. Norman, J. Willard, Robt. Fife, and Jas. H. Veitch.

A collection of Apples and Pears embracing thirty dishes, was shown by Mr. W. J. Empson, gr. to Mrs. WINOFIELD, Amphill House, Amphill. This was a praiseworthy exhibit, and some of the varieties were very well preserved. Of Apples we noticed Lord Derby, Mère du Ménage, Cox's Pomona, Warner's King, Beauty of Kent, Lane's Prince Albert, Ribston Pippin, King of the Pippins, Gascoignes' Scarlet, Brownlee's Russet, Cox's Orange Pippin, &c. (Silver Knightian Medal).

A magnificent exhibit of Grapes was made by Mr. J. BURY, Petersham Vineries, Byfleet, Surrey, including six baskets as packed for transit to market, the Grapes being attached around the sides of cross-handled baskets, and the surface protected by bent shoots. Altogether there were about sixty bunches, representing the varieties Muscat of Alexandria, Alicante, and Gros Colmar. The Alicante was especially well coloured (Silver Knightian Medal).

A large boxful of excellent Mushrooms from Mr. J. MILLER, gr. to Lord FOLEY, Ruxley Lodge, Claygate, was awarded a Cultural Commendation.

In the Veitchian class for competition in flavour there were again a good number of Apples shown. The best Apple was Margil, shown by Mr. J. C. TALLACK, gr., Livermore Park, Bury St. Edmunds. The fruits were taken from an old orchard tree, growing in a sandy loam. Claygate Pearmain was awarded 2nd prize, and it was shown by Col. BRYMER, M.P., Islington House, Dorsetshire.

The best Pear proved to be Josephine de Malines, shown by Capt. CARSTAIRS, Welford Park, Newbury (gr., Mr. C. Ross). The fruits in this case were taken from a tree thirty-six years old, growing against a wall with south-west aspect; soil, a light loam or gravel.

Messrs. T. F. RIVERS & SON, Sawbridgeworth, showed their new black Grape Directeur Tisserand, a bunch of well-preserved Mrs. Pearson Grapes, and four very large Citron fruits.

A 1st Class Certificate was awarded to Pear President Barabe, from Mr. W. ALLAN, Gunton Park Gardens, Norwich. It will be remembered that on the last occasion an Award of Merit was recommended to this Pear, and it obtained 1st prize for flavour.

Mr. THOS. ROCHFORD, Turnford Hall Nurseries, Broxbourne, showed a new black Grape, said to be a sport from Black Alicante. The berries are large like Gros Colmar, with skin more like Alicante. The Grapes had very little flavour. The Committee would like to see the variety again after the sport has been got upon its own roots.

DEVON & EXETER GARDENERS'.

JANUARY 7.—The annual supper of this Association took place on the above date at the Castle Hotel, Exeter. Mr. W. CHARLEY, gardener at Wenford House, in the chair. The company, consisting of members and friends, were rather numerous.

The chairman, in proposing "Prosperity to the Association and its work," spoke of the high level of excellence to which many of the essays given had reached, and the instructive discussions which generally followed their readings, thereby not only bringing out the different methods of cultivation practised, but, by comparison and inferences drawn from the results, pointing out which was the best. Mr. W. Mackay (Hon. Treasurer), in replying for the Society, said the members had good reason to be pleased with the work done in years past, and good grounds for hoping that yet better work would be done in the future.

CHISWICK GARDENERS' MUTUAL IMPROVEMENT.

JANUARY 6.—A meeting was held in the Council Chamber of the Royal Horticultural Society's Gardens of the above society, when Mr. A. DEAN gave a lecture entitled "Edible Stem Plants." There was a large attendance of members. Most of Mr. Dean's remarks alluded to were of a practical nature, and proved very interesting to his listeners, dealing, as they did, by the aid of diagrams, with Asparagus, Celery, Seakale, and others of that type, and giving full instructions as to cultivation. A good discussion followed, taken part in by several gentlemen present.

GRAND YORKSHIRE GALA.

Annual Meeting.

JANUARY 7.—The annual meeting of the guarantors and life members of the Grand Yorkshire Gala was held at Harker's Hotel, York. Ald. Sir JOSEPH TERRY occupying the chair.

The Chairman, alluding to the gala in June, said that circumstances had prevented the public witnessing the usual beautiful floral exhibition. He believed the flower-show would have been of an exceptional character, and one which would have been immensely appreciated. A strong wind, however, on the morning of the *fête* wrecked the flower tents, and rendered all the perfected arrangements but work in vain. The damage done amounted to about £600, a catastrophe which had never been previously experienced. On every hand the circumstances had created regret. Expressions of sympathy had been received from several of the exhibitors, and one gentleman—Mr. ATKINSON, of Sheffield—had sent a donation of five guineas to the Society. As regarded the coming *fête*, they had again made satisfactory arrangements with the Bootham Asylum authorities.

Ald. Sir CHRISTOPHER MILWARD proposed the re-election of Sir Joseph Terry as chairman of the council. The other officers appointed were:—Treasurer, Mr. Joseph Wilkinson; secretary, Mr. C. W. Simmons; and auditors, Messrs. Pearson and Taylor. The usual committees were also elected.

The following grants were made for the ensuing gala:—Floral arrangements, £650 (including £50 as a Victorian commemoration prize, offered last year but not awarded); music, £200.

Ald. PURNELL proposed the health of Sir Joseph Terry, and congratulated him upon having attained his seventieth birthday. No gentleman, he said, was more esteemed in the city. Ald. Sir JOSEPH TERRY suitably responded, and the proceedings terminated.

[Since this report came to hand, we greatly regret to have received intelligence of the death of Sir Joseph Terry, on Wednesday, the 12th inst. The deceased gentleman was for many years a zealous patron of the society, and of horticulture generally.]

ROYAL BOTANIC.

JANUARY 8.—A meeting of the Fellows of this society was held in the gardens at Regent's Park on Saturday last, Major Cotton presiding. Two new Fellows were elected. The chairman stated that he was pleased to be able to congratulate the Fellows upon the excellent position in which the society now stood as compared with its position at the opening of last year. At that time the outlook was gloomy, for the lease of the gardens was about to expire, and an accumulated balance of some thousands of pounds stood on the wrong side of the accounts, and was not only in itself a source of some uneasiness, but also prevented the society from giving prizes at the various *fêtes* and shows as liberally as it is desired. The position, however, had been resolutely faced, and he was pleased to say that with the co-operation of the Council and some of the lending Fellows, the society was now perfectly solvent, and the accumulated debt which had so long been a source of trouble and anxiety had been swept away. A new lease for the maximum term of thirty-one years had been promised by the Commissioners of Woods and Forests. Not only were the gardens open for study to the pupils of the various medical schools, but a school of practical gardening had been started with the concurrence and aid of the London County Council. The Middlesex and Herts County Councils had approached the Society with a view to sending students to the new school, and it was believed that to ladies also such an opportunity of learning gardening would be most agreeable. The Council of the British Astronomical Association, too, were taking steps to erect and equip an observatory in the gardens. Reference was made to the great increase in the number of Fellows elected in 1897, there having been more than eighty above the average

numbers of the last ten years. The receipt of a large number of donations to the library and museum was recorded, and a vote of thanks to the donors having been passed, the meeting terminated.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

JANUARY 10.—The annual general meeting of the Reading and District Gardeners' Mutual Improvement Association was held in the Club Room, "British Workman," on Monday last, when Mr. C. B. Stevens presided over a good attendance of members.

The report and balance-sheet read by the hon. secretary, Mr. James Pound, Jun., were of a very satisfactory nature, both showing that the Association was in a very flourishing condition. The committee regretted the death of Mr. Alfred Sutton, who had always taken a great interest in the work of the Association, and had since its formation in 1888 provided gratuitously the Club Room for their meetings. They also record the death of Mr. George Palmer, who was an annual subscriber from the commencement of the Association. The meetings during the year had been well attended, on some occasions upwards of eighty members being present.

A beautiful group of well-grown *Cyclamen* was shown by Mr. W. Townsend, The Gardens, Sandhurst Lodge.

SCOTTISH HORTICULTURAL.

JANUARY 11.—The annual business meeting was held at Edinburgh. Mr. M. TODD, the president of the Association, preside over a large attendance. The report of the secretary spoke of the success which had attended the efforts of the Association, both in its literary work and the influence it had brought to bear in cultivating the tastes of the general public in a love for horticulture in its higher branches. From its foundation in 1877, the Society each year had shown a large increase in membership, which had been the means of establishing the Association on a sound financial basis. The first minute of the Association showed a membership of 100, while at present there were 600 members, 150 new members having been elected during the past year. The report concluded by referring to the Chrysanthemum show which had been held under the auspices of the Association. The surplus profits of the show (£250) had been allocated to charitable purposes, as follows:—£100 to the pavilion fund of the Edinburgh Royal Infirmary, £50 to the Sick Children's Hospital, £50 to the Gardeners' Orphan Fund, and £50 to the Gardeners' Royal Benevolent Fund. The treasurer's report, which was also submitted, showed that the income from the Chrysanthemum show had been £1264 7s. 8d., and the expenditure, £1189 6s., giving a balance to the Association's account of £75 1s. 6d., to which had to be added the income of the Association proper, £88 19s. 2d., giving a total of £164 0s. 10d. The following officers were elected for the ensuing year:—Honorary President, His Grace the Duke of Buccleuch; President, Mr. M. Todd; Vice-Presidents, Mr. D. P. Laird and Mr. James Grieve; Secretary, Mr. R. Laird, 17A South Frederick Street; Assistant Secretary, Mr. Murray; and Treasurer, Mr. Alexander Mackenzie.

Obituary.

MICHAEL LAURENCE.—The death is announced of Mr. Michael Laurence, who since 1847 has been the head of the flower gardens at Tostock house, Suffolk, the charming seat of Mrs. William Gilbert Tuck. Although more than eighty-two years of age, he remained hale and active until the last, and was rarely absent for a day from his work. No matter what season, wet or dry, he always had a wonderful display of hardy flowers in spring, summer, and autumn. Only last November, when looking round, we noticed over 100 plants of various kinds in bloom. He was no lover of formal beds of glaring colour and prim form, but delighted in the better class of annuals and perennials to relieve the more formal class of bedding-plants. Perhaps as a grower of Pansies, Auriculas, Primulas, and Dahlias, he had few equals, and as a good all-round man, his employers have certainly lost one of the best. A large number of persons from all parts of East Anglia attended his funeral on Friday last at Tostock Church.

MAX DEEGEN.—Many Dahlia cultivators in this country will learn with regret of the death, at Köstritz, in Thuringia, of Herr Max Deegen, at the age of fifty-six years. He was the second son of the Dahlia raiser, Christian Deegen, of Köstritz. M. Deegen followed his father's profession, at first in his nursery at that place; and afterwards travelled in search of knowledge and experience. He returned after several years, and took over the management of his father's nursery, and in 1870 he started an independent

business as florist, but chiefly as a raiser of Dahlias, and it is to his efforts in this direction that we owe many of our most beautiful varieties. The business will continue to be carried on by his eldest son, Adolf Deegen.



[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.		
	Above (+) or below (—) the Mean for the week ending January 8.	ACCUMULATED.				More (+) or less (—) than Mean for the Week.	No. of Rainy Days since January 2, 1898.	Total Fall since Jan. 2, 1898.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 2, 1898.
		Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since January 2, 1898.	Below 42°, difference from Mean since January 2, 1898.					
0	1 +	6	34 +	1 -	8 0	aver	6	1.1	20	20
1	2 +	8	29 +	2 -	14 2	5	0.5	18	18	
2	5 +	19	11 +	13 -	28 2	5	0.7	23	23	
3	5 +	15	16 +	8 -	29 3	5	0.7	19	19	
4	5 +	22	14 +	14 -	31 1	4	0.6	23	23	
5	6 +	28	4 +	17 -	33 2	3	0.4	26	25	
6	4 +	19	11 +	10 -	20 3	7	1.6	11	11	
7	5 +	22	3 +	14 -	30 11	6	1.8	17	17	
8	4 +	30	5 +	10 -	22 2	5	1.1	21	21	
9	4 +	21	12 +	10 -	16 3	6	1.1	12	12	
10	4 +	28	3 +	11 -	20 7	6	1.6	9	9	
*	4 +	46	0	23 +	11 3	5	0.5	26	26	

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending January 8, is furnished from the Meteorological Office:—

"The weather during this period was very unsettled and mild over the Kingdom as a whole, with frequent and considerable falls of rain in all the western districts. Over the more eastern and southern counties, however, the rain was as a rule, less frequent and heavy, and several intervals of clear bright weather were experienced.

"The temperature was above the mean, the excess ranging from 1° in 'Scotland, N.,' and 2° in 'Scotland, E.,' to 5° in most parts of 'England,' and to 6° in 'England, S.' The highest of the maxima were recorded about the middle of the week, and ranged from 56° in 'England, E.,' and 55° in 'England, S. and Ireland, S.,' to 49° in 'Scotland, N.' The lowest of the minima, which were registered on rather regular dates, ranged from 23° in 'Scotland, N. and E.,' and 28° in 'England, E. and S.W.,' to 35° in 'England, E.W.,' and 36° in the 'Channel Islands.'

"The rainfall exceeded the mean in all the 'Grazing districts, as well as in 'England, N.E. and E., and the Midland Counties,' the excess being very large in 'England, N.W. and Ireland, S.' In 'Scotland, E., England, S., and the Channel Islands,' it was less than the mean value.

"The bright sunshine was somewhat in excess of the mean in most of the northern, eastern, and southern districts, but below or just equal to it in the west. The percentage of the possible duration ranged from 26 in 'England, S. and the Channel Islands,' to 12 in 'Ireland, N.,' 10 in 'Scotland, W.,' and 9 in 'Ireland, S.' "

TRADE NOTICE.

MR. HENRY WOLLCOOK, as Manager at Pesbrooke Gardens, Titchfield, Hants.

ENQUIRY.

"He that questioneth much shall learn much."—BACON.
Will any reader of this Journal kindly tell "H. C. J." the name and address of the makers of the Cheltenham Garden Engine (Page's Patent).

GARDENING APPOINTMENT.

Mr. THOMAS PHILLIPS, for nearly three years Head Gardener with the late F. LATOUCHE, Esq., at Bellevue, Delgany, co. Wicklow, has been appointed Head Gardener to C. TWYDEN HOARE, Esq., Bignell House, Bicester, Oxon.

Mr. THOMAS F. BINDALL, for the past seventeen years Gardener at Langton Hall, Northallerton, and Sandley, Gillingham, Dorsetshire, as Gardener to S. G. LEATHAM, Esq., Hensworth Hall, near Wakefield.

J. CLAYDON, late Gardener to Captain JOLLIFE, Heath House, Petersfield, Hants, as Head Gardener to Major GUNDEY, R.A., Purbrook Park, Cosham, Hants.

CATALOGUES RECEIVED

CHARLES SHARPE & Co., Ltd., Sleaford, Lincolnshire—Seeds. HAAKE & SCHMIDT, Erfurt, Germany—Seeds and Plants.

TOOGOOD & SONS, Southampton—Seeds, &c. J. BACKHOUSE & SON, York—Seeds, &c.

ARMITAGE BROS., Ltd., Nottingham—Seeds, Bulbs, and Plants for Spring Planting.

J. R. PEARSON & SONS, Chilwell Nurseries, Nottingham—1, Seeds; 2, Chrysanthemums.

B. R. DAVIS, Yeovil Nurseries, Somerset—Begonias.

HOGG & ROBERTSON, 22, Mary Street, Dublin—Seeds, &c.

HERO BROS., Penrith—Seeds and Sundries.

EDMONTON BROS., 10, Dame Street, Dublin—Seeds, &c.

W. SHAWO, The Greaves Nurseries, Lancaster—Seeds, &c.

AUSTIN & MCASLAN, 89, Mitchell Street, Glasgow—Seeds, &c.

M. CUTHBERTSON, Rothesay, N.B.—Seeds, Herbaceous Plants, Roses, Violas, &c.

BARR & SONS, King Street, Covent Garden—Seeds, &c.

ROBT. SYDENHAM, Tenby St., Birmingham—Seeds.

W. BULL, 536, King's Road, Chelsea, London—Seeds.

THOS. S. WARE, Hale Farm Nurseries, Tottenham—Seeds, &c.

THOS. KENNEDY & Co., 106 and 108, High Street, Dumfries—Seeds, &c.

DICKSON & Co., Waterloo Place, Edinburgh—Seeds, &c.

WM. BAYLOR HARTLAND, Patrick Street, Cork—Seeds, &c.

ALEX. LASTER & SON, 13, High Street, Rothesay—Seeds.

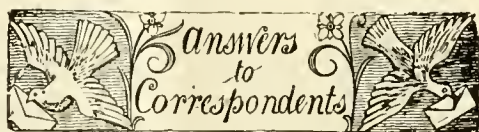
KELWAY & SON, Langport, Somerset—Garden Seeds, Perennial Herbaceous Plants, Peonies, Gladioli, &c.

F. MILLER & Co., 267, Fulham Road, London—Seeds.

WM. CLIBBON & SON, 10 and 12, Market Street—Seeds.

CLARK BROS. & Co., 65, Scotch Street, Carlisle—Seeds, &c.

WM. CUTBUSH & SONS, Highgate, London; and Barnet, Herts—Seeds, &c.



BOOKS: *G. Broad, Junr.* A manual on the cultivation of the Dahlia is sold by Dobbie & Co., Rothesay, N.B., also by Messrs. Macmillan & Co., London.

CUPRESSUS LAWSONIANA AND C. (RETINOSPORA) PISIFERA: *M.* Detached sprays are often difficult to distinguish. Generally the leaves of Retinospora are more suddenly and abruptly spine-tipped, and flatter than in *C. Lawsoniana*. The cones in the latter show the tips of the bracts more clearly than do those of the Retinospora. But if you are handling them every day you will soon get to know them much better than those who only see them occasionally.

EUPHORBIA JACQUINLEFLORA: *Ansious.* Cut up the ripened parts of the stems into lengths of 9 to 12 inches. This should be done when the plants have gone out of flower, and have been kept dry for ten or twelve days. They may be struck singly in well-drained pots filled with sandy-peat; or, better still, half-a-dozen together in a 48, in bottom-heat. These potfuls of rooted cuttings may be planted out in a border in a stove, or repotted without separating them one from the other, the effect of the whole, when in flower, being superior to that afforded by single plants. It is a plant that wants a good deal of rooting-space, and a hot, sunny place in which to grow at all times. Nice bushes are attained by stopping the points once or twice; and, although there will then be more flower sprays, these will be small. The best kind of soil for *Euphorbia Jacquinie* flora is a rich, sandy peat; and as a good deal of water is required by the plant in the summer, sufficient space should be left for affording it, and plenty of drainage is very necessary.

GEOMETRICAL DRAWING: *Bucks.* A manual is, we believe, published by Mr. Upcott Gill, Bazaar Office, 171, Strand, W.C.

NAMES OF FRUITS: *A. O.* Specimen not a good one, but probably Cox's Pomona.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*R. L. N.* Probably a seedling *Quercus Ilex*.—*P. M. M.*, *Dumbarton.* The Orchid is *Oncidium Jonesianum*. The plant is found generally to thrive best on a bare block or raft, and its natural habit of growth is for the thick terete foliage to hang downwards. When making new growths, you can scarcely give it too much heat and moisture; but while flowering a cooler house suits the plant better, and prolongs the duration of the flowers. The house you have it in will probably suit it for the greater part of the year.—*J. M.* *Hypericum Androsæmum*.—*C. B.* 1, *Pteris cretica albo lineata*; 2, *Pteris serrulata*; 3, *Pteris Ouverardi*; 4, *Pteris serrulata cristata*; 5, *Pteris cretica cristata*; 6, *Pteris tremula*.—*A. D. L.* *Catasetum macrocarpum*.

PETUNIAS FROM SEED SOWN IN A COLD VINERY: *J. F. S.* The plants can be raised in a cool vinery, provided the seed be sown thinly in pots or pans filled with light, slightly sandy soil, and covered till germination has taken place with a tile or piece of glass. When the seedlings are above-ground, bring the seed-pot close to the glass, affording it a slight amount of shade when the sun is shining. Prick out the plants when they are half-an-inch high.

POINSETTIA PULCHERRIMA: *Ansious.* From the present time, or when the flowers fade and the foliage begins to turn of a yellow colour, withheld water, but still keep the plants in a moderately warm house, and when quite at rest, store them in any dry shed out of reach of frost. Cuttings may be made of the leafless ripe shoots cut into 6 to 9-inch lengths, and struck singly or several together in well-drained pots filled with very sandy loam, and then afforded a gentle watering. The pots may be stood in a hot-house till rooted, being careful not to afford them much water till roots form. When potted off, the plants should be put into a warm pit near the glass, and shaded till established, but not afterwards. Very little artificial heat is required during the summer months. Old plants may be started into growth after flowering, without affording them any rest, the young shoots being taken off with a beel, and used as cuttings. These may be 6 inches long. To prevent bleeding, place the cuttings round the sides of a deep pot, the butt ends upwards just ranging above the rim, fill with damp warm sand, and leave them therein for twenty-four hours in a warm house, by which time the milky juices will have hardened where exuded. They must be struck in propagating-pit or hot-bed, and kept close, the leaves being tied up to small sticks. The treatment after rooting is the same as that given above.

PRIMULA OBOCONICA: *C. M. I.* In the absence of any particulars of cultivation we cannot account for the browning of the edges of the leaves. It is doubtless some little point in culture; and we note that the leaves are deficient in substance.

TREES AND SHRUBS: *G. W.* For exceptions as to what rabbits will not eat, see "Answers to Correspondents" in *Gardeners' Chronicle*, for Jan. 8.

COMMUNICATIONS RECEIVED.—*J. V. & Son.*—*G. S. B.*—*M. A.*—*M. E. R.*—*Kelway, Langport*—*A. B.*—*Reginald Young*,—*T. Down*,—*P. H.*—*D. R. W.*—*A. W. P.*—*G. W.*—*C. H.*—*J. J. W.*—*G. H. M.*—*E. G.*—*E. C. H.*—*W. W.*—*H. R.*—*W. J. B.*—*G. N.*—*H. T.*—*D. T. F.*—*W. M. D.* (many thanks).—*T. B.*—*W. G. S.*—*W. W.*—*R. P. B.*—*L. C.*—*Jadoo*.—*H. H. D'O.*—*J. P.*, Wickham.—*H. H.* (next week).—*A. D.*—*F. W. B.*—*T. D.*—*H. M.*—*R. D.*—*N. B.*—*D. T. F.*—*T. B.*—*H. H. R.*—*D. B. W.*

PHOTOGRAPHS, SPECIMENS, ETC., RECEIVED.—*U. D.*, Berlin.

CONTINUED LARGE INCREASE in the CIRCULATION of the "GARDENERS' CHRONICLE."

Important to Advertisers.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED,
and that it continues to increase weekly.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES of GARDENERS and GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.

(For Markets see p. xiii.)



THE

Gardeners' Chronicle.

SATURDAY, JANUARY 22, 1898.

DO ORCHIDS DEGENERATE?

SINCE the very interesting article appeared on the above subject in the pages of the *Gardeners' Chronicle* of September 18 last, I have been somewhat disappointed in finding the hope expressed by the writer that the readers of the *Gardeners' Chronicle* might be "able and willing" to give their version of a matter of such great importance has been but partially realized, only a limited number of contributors coming forward with their experiences. The few papers that have appeared, however, are valuable, the most so, I venture to think, in partly affording a direct answer to the question, being the plain unvarnished list of Orchids furnished by Mr. W. H. White, from Sir Trevor Lawrence's collection, which appeared in the *Gardeners' Chronicle* of Oct. 2 last. Surely this list tends to prove that, under proper treatment, Orchids in this country do not degenerate.

It is something to say that out of some 250 species enumerated more than fifty of the plants have been in cultivation for the past twenty years, and considerably over 100 for the past fifteen years, and all are, presumably, at the present moment in robust health. It must also be remembered that many of the species in this list fall under the heading of the "unmanageables." In putting the question: Do Orchids degenerate? I take it that what is meant is, do the plants gradually, and year by year, decline in vigour after importation, even when treated in a rational manner, and when grown under conditions as nearly as possible similar to those under which the plants are found flourishing in their various natural habitats. I have never had the pleasure of inspecting Sir Trevor Lawrence's famous collection, yet I am inclined to the belief, that in its cultivation attention is paid to the reproduction, as far as possible, of those natural conditions under which the plants flourish in the various climes from which they are procured, and therein, to a very great extent, lies the secret of success. If this be so, then, I think, it may be said that we are approaching, at least, the final answer to the question, Do Orchids degenerate?

Mr. T. Simcoe, in *Gard. Chron.*, Oct. 16, 1897, p. 275, gives two causes for degeneracy in Orchids grown in England, viz., the ravages of yellow thrip, and our trying British winters. Some winters are trying, no doubt, but at the worst they can only check the growth and vigour of Orchids for a limited period, and a style of house may yet be invented to put an end to this drawback. Besides the above, numerous other causes might be assigned for

degeneration in Orchids of a like character, but is it not idle to take these matters into consideration at all? If we are to consider them, then it may in truth be said that nearly the whole of our cultivated plants are in a state of degeneracy, as nearly all suffer more or less from the attacks of insects and the vicissitudes of our climate.

I take it, however, that all this has nothing to do with the question at issue, namely, "Do Orchids degenerate in England when cultivated under circumstances most favourable to their health and longevity, and in consideration of the natural conditions under which they are found to flourish in a wild state?" It is obviously a waste of time to write about yellow thrip, crowding, unsuitable potting-material, &c., as causes of degeneracy, because all these are inimical to the health and longevity of any plant in cultivation. In conversation lately, I was given the familiar example of the Potato; but is, after all, the frequent failure of this crop to be attributed to degeneracy? Let those who wish an answer to this query remember that the Potato has been in cultivation in Britain for the last three centuries, and now at the end of that long period, witness the displays of the different varieties of the tuber, and then say if the Potato has or has not degenerated? methinks if the exhibition examples of the present day could be compared with the first importation of the tuber by Sir Walter Raleigh, the question of degeneration would very soon be lost sight of. Disease is not degeneracy. The first can be combated, the second cannot. I may be told that but for the raising of new varieties from seed the Potato would, at the present day, be unknown in England. Possibly, but the battle has been fought against disease, not against degeneracy. I therefore consider that most excellent and valuable advice has been given in that part of the paper in the *Gardeners' Chronicle* of September 18, in which the writer says, "The question is, then, would it not be wise to raise uncrossed, or true, many of the finer varieties of Cattleyas, *Lolias*, and other popular Orchids, and thus while increasing the plants wished for, get also the better constitution which comes with the seedling plant raised in the country in which it has to grow?"

I am strongly of the opinion that failure in Orchid-growing results, in most cases, from a total lack of knowledge of the various climatic conditions which prevail in the regions from which the imported plants are drawn, and the conditions under which they flourish and blossom in their native wilds. To one who has seen Orchids growing in their native wilds it is a grievous thought to know of the vast numbers of these plants that are annually torn from the Orchid forests of the world, brought to the hammer in England, and from want of knowledge and other causes, allowed to perish and be thrown to the rubbish-heap. Let any one look at the weekly notices of auction sales of Orchids which appear in the *Gardeners' Chronicle*, and then ask the question, What becomes of all these plants of which the jungles of the world are robbed year by year, and sent like ordinary merchandise to our markets? Are they all cared for, and do they all find suitable quarters for the reproduction of that beauty and sweetness erst so lavishly wasted "on the desert air?" Perhaps, if all the truth were known, the answer would be—not a tithe of these are given a chance to renew that beauty and fragrance, but are doomed to decay and death at no distant date from their first arrival on our inhospitable shores. If ever it be found

necessary to legislate against the indiscriminate and wholesale destruction of any plant, let that plant be the Orchid. I am aware that England is not mistress of all the Orchid-producing countries of the world, but many of her colonies and possessions abound in these plants, not a few of which are of the rarest beauty and value, and which she has the power to protect and save from total extinction.

To my mind, the most interesting and suggestive passage in the article in the *Gard. Chron.* of Sept. 18 last, already referred to, is that in which the writer says that to redeem many evergreen Orchids from the list of unmanageables, probably more attention must be paid to the all-important matters of rest and moisture, for "an excess of heat and moisture at a season when, though evergreen, they require, in the same manner as the deciduous plants coming from the same districts, a resting season, though not necessarily a drying-off."

A more valuable suggestion than this, I venture to think, could hardly be offered, and in support of it, I may be allowed to give my experience of the conditions under which Orchids both evergreen and deciduous are found growing in their native habitats, which though circumscribed, may yet be of some little value to the reader.

The following observations are confined to what I noticed on the plains and hill-tracks of Malabar, in Southern India, where I sojourned for several years. I have no experience of other districts or countries, so that whether the conditions under which the two typical plants are found in other quarters of the globe are the same I will leave others to say.

Evergreen Orchids in Malabar are generally found from the coast level up to an elevation of say 3,000 feet; from 3,000 feet up to 5,000 feet deciduous Orchids are found, and from 5,000 feet up to the summit of the highest mountains evergreen Orchids are again found. There are thus three distinct zones, the plants of the one never encroaching upon that of the other. Of course there must be a cause for this, and so far as I am able to judge it is as follows. *J. Lourie.*

(To be continued.)

KEW NOTES.

LOBELIA INTERTEXTA, Baker.—This is a new species of *Lobelia* which has lately been received from British Central Africa, where it grows at an elevation of about 2000 feet on the Zomba hills, and is described as "a very pretty species, wonderfully free-flowering, generally at its best under the shade of rocks." It has the habit of *L. erinus*, the bedding *Lobelia*, but is looser, the stems and under-side of the leaves are purple and hairy; the latter being spatulate, crenate, and half an inch in diameter. The flowers, which are in loose terminal racemes, are on slender stalks 1 inch long, and they are of the usual shape, half an inch in diameter, coloured bright lilac-blue, with a white central area, and a pair of eye-like spots on the lower segments. The Kew plants were raised from seeds sown last spring, and they have flowered freely and continuously since November, the poisonous fogs experienced about Christmas time having no apparent effect upon them. I believe this will prove a useful pot-plant for the greenhouse in mid-winter, and it is also likely to be useful as a badger. A figure of it has been prepared for the *Botanical Magazine*.

KNIPHOFIA PRIMULARIA.

Plants of this handsome new yellow-flowered species are now flowering freely in the temperate-house at Kew. It was received from Herr Max Leichtlin in November, 1894, who wrote "I beg to send you a new *Kniphofia* which came from Natal, and is a winter-bloomer. The leaves are 3½ to 4 feet

long, and the scapes are a yard high. It is a graceful plant. Perhaps Mr. Baker will be good enough to name it when it flowers." In the following spring it was planted in the Bamboo garden, where it grew freely, but did not show for flower till November, consequently the flowers did not develop. Next year the plant was grown in a pot outside, and taken into the temperate-house to bloom. This it did in January last year, when Mr. Baker named it as above, and described it in the new volume of the *Flora Capensis*. Several examples of it are in flower now, and as the spikes are as strong, and the flowers as numerous and large as those of *K. aloides*, whilst their colour is a clear primrose-yellow, it will be seen that this is a useful addition to winter-flowering plants for the greenhouse. The flowers were uninjured by fog.

OXALIS GRENATA.

This plant has been recommended, and, I believe, tried as a substitute for the Potato in countries where the climate is unfavourable to the latter. It has fleshy stems about 2 feet long, and from the base of these in the autumn stoloniferous stems are developed, upon which are Potato-like tubers in large numbers. Plants grown in a bed in the open air at Kew produced a large crop, the largest being 2 oz. in weight. Raw, they are of a bright red colour, but when with cooking they change to a pale amber colour, they are quite as palatable as the Jerusalem Artichoke. Those I tried were boiled twenty minutes in water containing a pinch of carbonate of soda. According to Vilmorin, this is the "Oka" of the Peruvians, and is highly esteemed in Peru and Bolivia as a vegetable. The tubers when gathered are exposed to the action of the sun for a few days. They are planted in rows 3 feet apart, and are not dug until after the frost has destroyed the tops. Two varieties are cultivated in France, the yellow and the red. In my opinion this plant is worth a trial in the warmer parts of this country. The tubers are being distributed from Kew to likely stations in the colonies and India.

STRELITZIA REGINÆ.

There are two large healthy examples of this plant now flowering in the Mexican-house at Kew, where they are planted in a sunny position in a kind of rockery. One of the plants has eight and the other five spikes, each about 4 feet long, and bearing an orange-yellow and dark blue flower 6 inches long. For such houses as that named—indeed, for any warm or tropical stove of large size, this is an excellent plant, whether grown in a pot or planted in a border. In the same house with *S. Reginæ*, and also in flower, is a large specimen of *S. augusta*, which used to be in the "Palmarum" at Olympia before it came to Kew. The nearly-allied species, *S. Nicolai*, is in flower in the Palm-house. *W. W.*

ALPINE GARDEN.

NEW AND RARE PLANTS FOR ROCKERIES.

(Continued from p. 28.)

Astrantia major rosca is common in the alpine pasturages above Montreux, and in the Alps of the Rochers de Naye. The involucre is pink, often carmine, and very showy. I transplanted some plants here into our common garden soil, and they kept their colour very well.

Campanula mirabilis, Alboff, was found by Mr. Nicolas Alboff, September 2, 1894, in a crevice of a limestone rock in Abchasia (Caucasus). He found only one plant of this marvellous Campanula, and we were fortunate enough, when he brought it to Geneva, where the dried specimen was placed in the Boissier Herbarium, to find some ripe seeds in two carpels, so that the species has been introduced into gardens. It is a beautiful plant, and M. Alboff was very enthusiastic in speaking of his discovery. It grew in a chalky soil, exposed to the full sun, and the one plant bore more than a hundred flowers. These flowers are very large, and belong to the group of the Campanula medium; they are of a very good lilac or light reddish-blue colour.

The peculiarity of the plant is in its root, which is very thick, and Carrot-like. The leaves are thick, of a very deep green colour, shining, glabrous, and very strongly ciliate at the margin. They are 4 to 5 in. long, $1\frac{1}{2}$ to $1\frac{3}{4}$ inch broad, and of a leathery texture. It has not yet flowered with us, but it flowered with my friend Mr. Max Leichtlin, at Baden Baden, who says it was a glorious thing. A good plate of it appeared in the *Bulletin de l'Herbier Boissier*, t. iii., where it was first described, and in the rare volume by Mr. Alboff, *Prodromus Floræ Colchicæ*.

Clematis heracleifolia, D.C., is a distinct and curious species, of which we got seeds from the University garden of Tokyo (Japan). The plants from these seeds are very similar to those of an old Clematis which was in this garden, then belonging to Mr. Paris, for more than thirty years without anyone knowing what it was, or being able to identify it. The plant is sarmentose, but not climbing; its branches $4\frac{1}{2}$ to 6 feet long hang from the rocks, or creep over the soil. The leaves are large, 9 inches long, and 8 broad, composed of five leaflets, of which the terminal is much larger than the others. They are dentate, and of a deep green tint, somewhat shiny. The flowers are very numerous, borne in large panicles, rather small, of the same form and size as those of *C. vitalba*, but of a light blue. They seed rarely here, and we have seldom gathered any ripe seed from our old plant; but the species can be easily increased by grafting. The profusion of the little bluish flowers in immense racemes from August till November makes the plant very decorative in the rock-garden. It grows in a shady or sunny position, and in any good soil.

Coprosma Pekii, Ch. [?] is a fine little Rubiaceae shrub creeping over the soil, and of the same appearance as *Azalea procumbens*. The seeds were sent to me from New Zealand, and gathered there 2200 feet up the mountains. The plant is hardy, but although our specimens are four years old, they have not yet flowered. I do not find any mention of it in the *Index Kewensis*.

Corokia Coloneaster, Kieul, is another New Zealand shrub, which has proved hardy here, and of which we got seeds from the Southern Alps of New Zealand at 2000 feet altitude. Curious in growth, erect, with few and small cuneate leaves, white underneath, of spiny aspect, the shrub is more curious than beautiful, but suitable for rockeries.

Cotula squalida, Hook. f., and *C. pyrethrifolia*, Hook. f.—The former came from Otira Valley, Westland, in New Zealand (1100 feet); the second, from Mount Rolleston, Westland (4500 feet). Two nice little Composites, of which M. Cockayne sent us seeds five years ago, and which are very hardy. They are quite dwarf, creeping, growing exceedingly rapidly, spreading everywhere over the soil, and covering it with their pretty foliage, like a little Fern (*Asplenium fontanum*), although much smaller. The flowers are without interest, but the growth of the plants and their charming foliage give them value.

Dianthus Boissieri, Willkomm, was discovered by Boissier in the Sierra Morena (Spain), and is a large and curious form of *D. sylvestris*. The stem is often 2 feet high, and the flowers large and of a good carmine tint. It requires a sunny position.

D. graniticus, Jordan, from the south-west of France, is a very dwarf variety, growing in the fissures of rocks and sandy ledges of granitic formation in the Olive region. Flowers solitary, small, of a very good red colour. It requires a sunny position.

D. diutinus, Kitaibel, from the Transylvanian Alps and the Banat, is a very rare plant, 16 inches high, with glaucous foliage, and a head of flowers of a very good pinkish carmine tint.

D. gracilis, Sibthorp, is a small-growing plant, with thin and narrow leaves, with sturdy and sweet-smelling flowers, of a light rose colour. It requires a sunny habitat. It grows on Mount Athos, and in the Balkans.

D. microlepis, Boissier, has been found by Frivaldsky in the alpine regions of the Mounts Rilodagh and

Kalophrir in Thrace, at an altitude of 7700 feet. It grows in Bulgaria, and I have got seeds of it from Rhodope. It is a very distinct species, quite dwarf, a kind of *Dianthus glacialis* in miniature. The flowers are of a good carmine-red, and we have also a white-flowered variety.

Dianthus pinifolius, Sibthorp et Smith, from the mountains in Turkey, Greece, and Wallachia. The seeds of it we have from Rhodope, and they yielded a very curious *Dianthus*, with narrow leaves of deep green, with small flowers in clusters, and borne on long stems. The corolla is pale carmine or rather lilac.

Dianthus spinosus, Desfontaines (D. Fontanesii, Boiss.), is a little bushy plant, very densely caespitose, glaucous, forming dense tufts, and not spiny—hence the name spinosus seems incorrect—but spiny in appearance and bearing white flowers, pink and agglomerated into small heads. It is a native of the higher Persian Alps. *H. Corceon, Gencl.*

THE ROYAL BOTANICAL GARDEN, BELFAST.

IRELAND is not particularly rich in public parks and gardens, but those actually in existence are remarkable for their quality, and for the richness and luxuriance of their hardy and exotic vegetation. At the head and front of such Irish gardens is Glasnevin, and no park in Europe can rival the Phoenix Park, Dublin, in its natural beauty, its primeval groves of Hawthorn, and its excellent keeping. In Dublin itself we have the St. Stephen's Green Park, the noble gift of Lord Ardilun, with its greensward and pools, its plants, and its trees, and its unique collection of choice water-fowl, a veritable oasis in the midst of a great city, to which all have a welcome and free access, be they peers of the realm or a group of city Arabs from the Coombe and other populous purlieus, bent on enjoying a tumble on the green grass, a frugal picnic with their tiny dark-eyed sisters amongst the birds and the flowers. From Dublin to Cork is a far cry, but the Queen's University Gardens at Cork are rich in choice plants, including a collection of species, varieties, and hybrids of the genus *Brownea*, not to be seen so well grown and flowered and fruited perhaps elsewhere. It is a treat to see the creeper-laden walls, and the garden there, where sweet Bays or Laurels flower and fruit as luxuriantly as in Italy; and many exotics not usually seen are to be found in the plant-houses, or even in the genial, open-air garden of this beautiful south country.

Not many weeks ago I paid a visit to "the cold black north" of Ireland with a garden-loving friend, who took me to Belfast, and some of its prettiest of public and private gardens. I had been previously under the erroneous impression that the Botanical Gardens at Belfast "were going down," and for many years back this had, I learned, really been the case; but there is now a vigorous and healthy renaissance, and the Belfast Botanical Garden and Park promise soon to rival those of other and even more favoured places. The beneficial reaction to which I refer began when the Corporation of Belfast acquired the garden on behalf of the citizens, who now flock to it by the thousands and tens of thousands on high days and holidays.

Although a town-garden in every sense of the word, it is nevertheless a most attractive and interesting place, with broad breadths of greensward, fine shade-trees, gay flowers in quantity at all seasons, and well-stocked and artistically-arranged plant-houses to boot.

Beside the main walk leading from the entrance to the conservatories are good examples of *Quercus Ilex* in variety, and other Oak-trees, including a good specimen of *Quercus suber*, *Q. austriaca semper-virens*, and one or two rare kinds, such as *Q. Fordii*, and *Q. fulhamensis*.

On my first visit, when looking at the trees, Mr. Smith, of Newry, pointed out to me on the lawn, near the rockery, an old specimen of the large-leaved *Pyrus* (*Aria*) *majestica*—perhaps the largest-leaved and most effective of all the geographical

variations of the "White Beam" tree. *Betula populifolia pendula* is another rare and distinct tree here, and grows freely, as one might naturally expect in this northern land of Birch and Willows. As one approaches Belfast, no tree-lover can fail to be struck with admiration at the graceful, silvery-stemmed Birches, and the grey Willows by the burns or streams.

On the broad grass-plot facing the old flower-garden and conservatories, there is one of the finest old White Willows (*Salix alba*) I ever saw in a town or public garden; it almost reminds one of the gigantic Black Poplar in the time-honoured old Botanical Garden at Dijon, although now only a

although only recently completed. There are rocks and boulders in all positions and aspects, and the plants are doing well upon or near them. There is a drip-well and Lily-pools for these and other aquatics, and there is also an extensive pond or lake, the banks of which are to be graced with Japanese Bamboos and Maples, and with the great "Prickly Rhubarbs," or Gunneras, of Chili and Peru. Between the rock-garden and the lake there is a naturally-contrived "prospect-mound," an old and characteristic feature, well worth retaining or reproducing in gardens, whereas here there is really a use, or reason to be in its favour. Lying as the garden does down the side of a slope, this "Prospect Mound" secures

greens; but it is more than a dream, for the workers in the factories and dockyards of Belfast are alive now to the gentle spirit of the garden, and, as we have said, flock here with their children and their wives to see the flowers, or to stroll on the green turf under the trees, or to meander quietly through the conservatories, and to peep into what is certainly one of the finest and most artistically arranged of all the Fern-houses in Europe, or in the world. I have certainly never seen so fine and satisfying a collection of Ferns, Bamboos, mosses, and climbing or trailing plants under a glass roof before—and I have seen a good many glass-roofed gardens and conservatories, and ferneries, and winter gardens in my time.

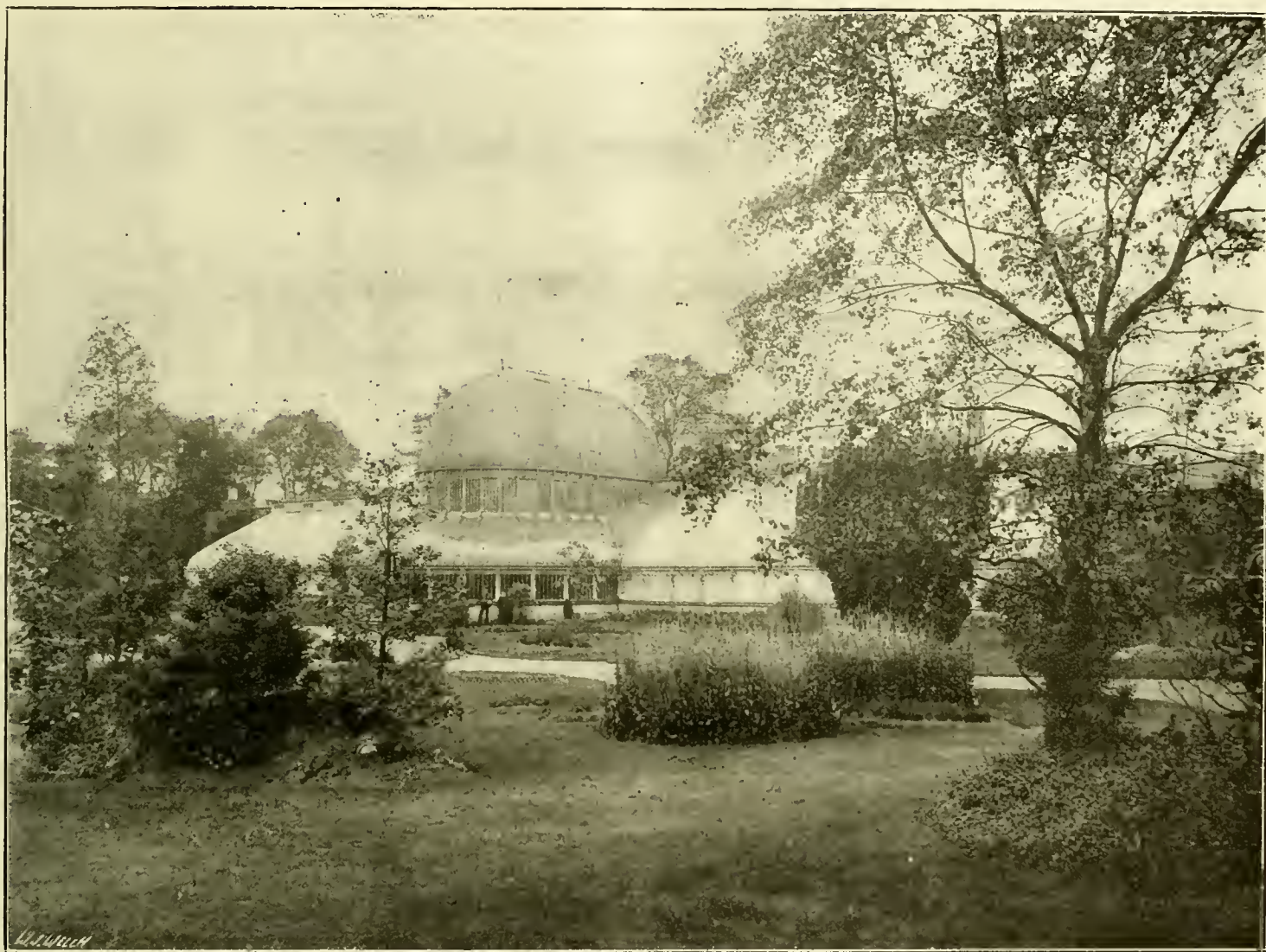


FIG. 19.—CONSERVATORIES AND FLOWER-GARDEN, BELFAST BOTANICAL GARDEN. (SEE P. 50.)

little of its top growth or umbrage remains. The slanting trunk or bole is over 19 feet in circumference, and even still does not appear very disproportionate when its branches are clothed with its silver grey, or olive-like leafage. Standing alone in its glory on the close-shaven lawn it is popular in more ways than one, and in summer-time it is the favourite rendezvous for the children who sit, or play and chatter beneath its shade. It is well-called "The Children's Tree," and long may it flourish as a memento of the past, and as a beautiful example of the beauty and appropriateness and usefulness of a native tree, in what is now a very popular and enjoyable public garden.

An extensive and thoughtfully-planned rock garden is amply worth notice, and is already well stocked,

many pretty peeps or views, not only of the Queen's College, Elmwood, and other spires or towers, but also of the "Black Mountain," and of the domain and woods belonging to Lord Derrymore. The tower of Queen's College, as seen through the trees is a charming feature, and recalls to mind, though in reality very different, the dear old Botanical Garden at Oxford, with its leafy fore-ground to the tower of Magdalen College. To think of Oxford and its gardens and walls, and cloisters, its "checkered Daffodils," or Fritillaries in the meadows, its river walks, and its song-birds, headed by that Queen of the night and of song the nightingale, seems like a dream in this city of towering chimneys and whirring looms—surrounded by flax-fields and bleach-

I may be wrong, but I think there is a charming bit of personality about this cool fernery. When our good and true fellow-craftsman, Dean Hole (now of Rochester) then of Causton, Notts, wrote that classical book on Roses, he used, or implied his feelings as to Rose culture in words something like these:—"He who would grow beautiful Roses in his garden must first of all have beautiful Roses in his heart." By the same token, I feel sure that the courteous director of the now most enjoyable Belfast garden must have had very dainty ideas of Fern beauty in his mind before he could possibly have planned and carried out under difficulties—or "through the fire," as he expressed it—such an exquisitely verdant, rocky glen as he has done in "the

garden that he loves" (with all due apologies to the Poet Laureate). I am not a geologist, but the neighbourhood of Belfast is a geologist's paradise, and there is a good deal of geology in Mr. Chas. McKimm's paradise of Ferns. The major portion of the rocky side-walls, banks, and borders on which the Ferns grow is soft red sandstone; there is limestone also for such species as delight in its influence, and there are sundry masses of quartzite, or silica shaped like pears, but like in the size to the old howitzer shells used at Sebastopol. There are rocks of many kinds—a charming, perfect column of basalt beside the door that is delightful to enter by, but depressing to leave, so fresh, cool, and delightful is the fairy-like Fern glades within. Our photographs, figs. 19, 20, and 21, give an excellent idea of the place from their respective points of view; but there are twenty points of view, and nothing short of an album of photographs would give any adequate notion of the place in all its phases of light, shade, and colour.

Amongst the Tree-Ferns are *Dicksonia antarctica*, and *D. squarrosa*, *Cyathea dealbata*, and *C. petiolaris*, or *C. medullaris*, and others, the names of which I forget. There is a dense green bank of "Killarney Fern" measuring about 9 feet long by 3 feet broad, and as fresh and healthy as one could desire. I suspect that Mr. McKimm has more *Trichomanes radicans* now growing in the Belfast Garden than could be now found at Killarney. Beautiful and translucent as this choice and popular Fern is, and ever will be, I saw a charming pale green, crapey-textured variety here that I have never seen elsewhere. It is more crisped, and its pinnae are more frilled than in the type, and the pale, almost transparent pea or apple-green hue of the feather-like fronds lends to them a most exquisite appearance. To see the dainty filmy Ferns growing near or around the black velvety trunks of the *Dicksonias* was most effective, and an experience I shall not soon forget.

The great Tree-Fern stems were clustered all over with a warm brown fur-like growth of green-tipped living roots, and the effect of these was heightened by feathery *Retinosporas*, or by the slender wands and grassy leafage of Bamboos; while from the roof depended the rich crimson flowers of that best of all the *Tacsonias*—*T. exoniensis* x. On all sides are mosses, *Lycopods*, creeping *Ficus*, *Tradescantia*, and *Begonias*, revelling in a temperature and an atmosphere that must be delightful to them in all ways.

Foliage-plants and Ferns are quite a specialty, and Mr. McKimm having at times a large amount of decorative-work on hand, has adopted the use of moveable screens, made of wood-framework faced with cork and fresh green moss, either *hypnum* or *sphagnum*, in which Ferns and other small-growing or creeping plants are effectively grouped and planted. On ordinary occasions these screens hide the hot-water-pipes in the plant-stoves or conservatories, but they can be removed anywhere at a few moments' notice. The idea was a novel one to me: hence, I mention it here for the benefit of all whom it may happen to concern.

Another little wrinkle in Fern-culture adopted by Mr. McKimm is not only to give suitable stimulating manure to his plants, but now and then a good soaking of lime-water is given, and is found to exert a very beneficial effect on Ferns generally, but especially on the *Adiantums* or *Maidenhair Ferns*.

Beautiful and satisfying as is the fernery, we must push on to the other houses, and in passing admire two fine masses of rosy-plumed *Pampas-grass* in the flower-garden. There is an extensive range of iron-houses filled with healthy and well-grown stove and greenhouse flowering and foliage-plants. The Chinese Banana is fruiting freely, and there are plants of economic interest, such as African Rubber (*Landolphia*), *Coca* (*Erythroxylon Coca*), *Croton*, *Ricinus*, *Strychnos*, Arabian and Librarian Coffee, Tea, *Coca*, Cuba Bast, *Arnatto* (*Bixa orellana*), the "Ups-tree" of Java and Borneo, and many other interesting things. In one of the private plant-stoves I saw a strong and healthy plant of Mr. Ellis's "Water Yam," of Madagascar (*Ouvirandra fenestralis*), and a healthy specimen of the graceful *Asparagus comorensis* had some of

its feathery branchlets weighted down by a profusion of dark chocolate or blackish-brown berries. As planted out and grown vigorously, this species is very ornamental with its glaucous-green stems and white bracts or spines.

Before leaving the garden with its cool fernery, rock garden, fine trees, and charming views, I was introduced to a charming young lady-gardener of six, who does a good deal of the machine-mowing on the lawns. "Miss Jeannie," the garden donkey, is quite an important personage, and a great pet with the children to whom she looks for a share of their cakes, biscuits, or sweets, in quite a sisterly manner. As I saw her with white Japanese Wind-flowers in her bridle, she looked very coquettish and attractive, and it was no detraction from her good looks to hear from Mr. McKimm that she is quite as useful and willing to do her best as are some of the less attractive members of her family.

I could say much more of the Belfast Botanical Garden-Park, as it is now called, but I could not feel more keenly than I do as to its great and far-reaching importance on the garden taste and artistic training of the young and old—"young men and maidens, old men and children"—of a great and thriving city; and I may add my earnest conviction, viz., that if garden-loving people visit Belfast without seeing its public garden, they will have missed much that it is a pleasure and a privilege to see and admire. *F. W. Burbidge.*

MARKET GARDENING.

HEATING FORCING HOUSES.

WE will now consider the heating of the description of forcing houses described on p. 20. The Melon and Cucumber-houses for early forcing should be provided with three 4-inch hot-water-pipes on either side, two of them being flows, placed one above the other, running alongside and close up to the piers or division walls, and one return close to the pathway; the flows being suspended by hooks made of bar-iron $\frac{1}{2}$ inch by 1 inch, and screwed on to the wall-plates, thereby conferring additional stability to the whole of the structure thus attached to the hot-water pipes. All things considered, I think joints made of cement are the best. These are easily and quickly made. White yarn is cut into lengths sufficient to go round the 4-inch pipe three times when placed in the socket. Two rounds of this are driven with the caulking tools into position round the end of the pipe close down to the socket, the two ends of the remaining round of yarn being brought together at and a little out from the top of the socket, so as to form an aperture. Several joints having been operated on in this manner, fill a half-pound coffee-canister with Portland cement, made to the consistency of thick paint, and empty the contents through the aperture indicated into the joints prepared for its reception, so as to completely fill the vacuum between the second and third round of yarn, tapping each joint with the caulking-iron as the work proceeds to ascertain that no empty space remains in the joint being made. After the cement has partly set, the third round of yarn should be driven home, and the several joints faced with stiff cement, and so on until the pipes are all fixed, including, of course, the necessary connections and valves. If the ground inside the several houses gradually rises from the boiler end of the house all the better, as the suspension hooks (which should have half-inch of the top of each bent to the angle of the wall-plate in order to grip the latter), can be made all one length, the pipes following a particular course of bricks a little distance from the floor-line the entire length of each house. A throttle-valve should be put in each of the flow-pipes in every house to regulate the circulation of heat. Diaphragm valves should be fixed in flow and return-pipes of any house or houses that are not likely to require heat during mid-winter, as, for instance, vineries and peacheries, but which will be connected with a heating apparatus that will be in use throughout the year. This will permit of the water being drawn from the pipes to prevent injury from frost. The same number of hot-water-pipes recommended above will be sufficient for warming the larger houses provided for the growing of Grapes and Peaches, and they should also be fixed and suspended by hooks. Thus supported there is no fear of the

pipes shifting in any way, as is sometimes the case when supported by bricks. A three-quarter-inch brass draw-off-tap should be screwed into one of the flow-pipes in each house at the warmest end; putting one in both flow and return-pipes (lowest end) in houses provided with diaphragm-valves for the purpose of emptying the pipes when necessary. When making stokeholes, provision (in the way of a series of 3-inch earthen-pipes) should be made, if possible, to carry away any water that might at any time accumulate. *H. W. Ward, Rayleigh.*

(To be continued.)

AMERICAN NOTES.

SUSPENSION OF "GARDEN AND FOREST."

IT is at once a public calamity and a public disgrace that *Garden and Forest* should have been forced to leave the field. We still have some good gardening papers left, and several journals of a general agricultural character which devote more or less space to horticultural matters; but the suspension of *Garden and Forest* leaves America wholly without any publication which may stand for the real advancement of the knowledge of horticulture without any horticultural journal of sufficient editorial dignity to attract contributions of original research, or of permanent value. The horticulturist who has now a new species of plant which he wishes to publish must send his MSS. to a botanical journal. If he has a well-studied critic of some pomological question, he must file his notes and wait. And *Garden and Forest* had a reputation for real literary excellence which commended it to the tastes of educated people; and it was always felt to be authoritative, so as to be safely relied on by scientist and practical horticulturist alike. But with all this "there are not enough persons interested in the things to which *Garden and Forest* was devoted to make it a paying venture." That is what gives us such a disconcerting view of ourselves. We thought we were getting to be students of horticulture in America. It is hardly likely, however, that the verdict of the publishers will be accepted for long. It is more probable that we shall soon have some sort of a candidate for the vacant place. Meanwhile with our regrets for *Garden and Forest*, we mingle the hope that there will not be too many competitors for its insufficient clientele but that there will be one worthy successor.

JAPANESE PLUMS AGAIN.

There is hardly a subject within the scope of horticulture which elicits such sure and general interest in this country as anything regarding the Japanese Plums. Public attention does not seem to be abated even by the growing certainty that these fruits are not at all likely to supplant the European and native varieties. Professor Bailey of Cornell, who has given these fruits special study since their introduction, has just published his third report, in which he says, he is still convinced that the Japanese Plums have come to stay. The nomenclature of these Plums is wonderfully and terribly mixed, in spite of their recent introduction, and Professor Bailey has spent considerable pains in its simplification. While it will be very difficult to secure anything approaching a unanimous consent to Professor Bailey's somewhat radical treatment of synonyms, still it is very much to be hoped that his publications will be taken as the standard of nomenclature in this group as far as possible, for they represent by far the best study yet given to this subject, and even an imperfect standard is better than none at all. When the various Japanese Plums are introduced in Europe by way of America it would save a repetition of much of our confusion if some definite system of nomenclature could be followed, and Professor Bailey's will naturally receive early attention. *F. A. Waugh.*

FRUIT OF PASSIFLORA EDULIS.

FOR many years I grew this fruit in quantity and I am rather puzzled with the editorial remark at the close of Mr. W. Swan's note, viz., that *P. edulis* is deliciously fragrant, but there is nothing to eat in it. Why, I have sent bushels of *P. edulis* [of gardens, Ed.]

to the dessert-table, and few fruits were more greedily devoured. They were often served in silver egg-cups, the tops cut off, and the rich orange-coloured pulp taken out of the r purple shells with the help of silver spoons. The whole fruit, including the seeds, is pleasant eating, and as the rind is specially thin, there is so much found to eat that few, unless gourmands, care to eat more than two at a time. The flavour is distinct, refreshing, and with a dash of acidity somewhat resembling Oranges, though unlike any other fruit.

As to fragrance, I assume you are comparing the fruits not the flowers, as of course *P. alata*, *quadrangularis*, *macrocarpa*, *amabilis*, and all of that family,

fruit, of which you give such a good illustration in *Gardeners' Chronicle* for December 25. The leaf given as *alata*, however, is far too small for well-developed foliage in a plant-stove of this true *Granadilla*. The leaf seems hardly bigger than that of *Passiflora edulis*. So far as the quality of those big Passion-fruits go, I was never able to find much difference, if any, between the three most popular ones, or one species under several forms or names, viz., *quadrangularis*, *macrocarpa*, and *alata*. Formerly parts of glasshouses, and sometimes entire houses, were devoted to the culture of these basket Passion-flowers, for dinner-table decorations and for the fruit for dessert. The former, if put on at the

with its golden pretty fruit depending in quantity from roofs. *D. T. Fish*, 12, *Fettes Row*, *Edinburgh*. [The fruits of *quadrangularis* and its allies are fleshy, like a Melon; in *edulis* there is something to suck, but little or nothing to eat. *Ed.*]

THE WEEK'S WORK.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, *Strathfieldsaye*, *Hants*.

Seakale.—Where it is proposed to cover some roots of *Seakale* with pots and litter, instead of lifting and forcing them, it may now be economically done, the



FIG. 20.—CASCADE AND POOL IN THE ROCK-FERNERY, BELFAST BOTANICAL GARDEN. (SEE P. 50.)

are far ahead of *P. edulis* in the fragrance of their magnificent blossoms. But in the matter of the aromatic fragraney of their pulp, *Passiflora edulis* is again an easy first. In fact, after many years' experience with the true *quadrangularis*, or *Granadilla* of the tropics, I still consider *P. edulis* as the only Passion-fruit we grow in Britain really worth eating; and also that those who know how to eat it will find plenty to eat.

As you justly say, *P. edulis* and *P. quadrangularis* should be, and are very different. Not only do the plants, flowers, fruits vary so widely in form, colour, size, but *edulis* thrives best in a cool greenhouse. *Quadrangularis* needs stove temperature to develop freely its fine blooms, and perfect its huge

ast moment, will go through the dinner with more or less wide-open eyes, and steep the room in fragrance, and the fruits will complete the tropical cast of the dinner; while *P. edulis* will generally be eaten raw, or be in urgent demand for ices, jellies, and preserves.

As mere garbure for the dessert table, the common blue Passion fruit (*P. cerulea*) which ripens of a rich golden or soft yellow colour about the shape and size of a bantam's egg, is highly ornamental, but as insipid as beautiful. *P. edulis* I repeat is the only Passion fruit worth eating in our climate. It also deserves its specific name, as it fruits profusely under cool greenhouse treatment without the trouble of special culture or the artificial setting of the blooms. *P. cerulea* also becomes a new plant for ornament

roots starting into growth more readily now than earlier. The best method is to provide proper *Seakale*-pots, with moveable covers for placing over the crowns, and failing these, large flower-pots may be used, well-prepared fermenting tree-leaves and stable-litter being placed between and above the pots as to produce a temperature of 55° to 60°. To produce the plump and delicate heads that are so much appreciated, the blanching must be thoroughly done, an examination of the growing heads being made occasionally after the lapse of three or four weeks in order to ascertain their condition. When the shoots are 6 inches long, then is the right time to take them, in doing this taking a small portion of the woody part of the root-stock; and covering up snugly as before, if more shoots are coming up. When the whole of the heads on a bed are gathered, remove the litter, and cover

the crowns with just enough of it as will protect them from sudden exposure to cold.

Horse-radish.—For this crop choose a piece of ground in the open away from trees, trench it deeply, placing a heavy dressing of decayed manure in the bottom of the trenches. Select young straight roots from 9 inches to 1 foot long, each having one crown only; plant them 12 inches apart each way. It is a good plan to plant a fresh bed every year in a new piece of land. In this way good handsome roots will be obtained with but little expense in time and labour.

Spring Cabbages.—Owing to the continued mild weather, the autumn-planted Cabbages are in a very forward state, and there is danger of them being injured by late frosts. If weather permits, plant out some of the young plants remaining in the seed-beds; also examine the autumn plantations, cutting any that are hearted.

Early Cauliflower and Cabbage.—Seed of early varieties of Snowball Cauliflower, and Cabbage may be sown on a gentle hot-bed, or in pans, placed in a warm greenhouse. When the seedlings are up, be sure to afford them air in sufficient quantity, and as much light as possible, as will prevent a spindling growth. If left long in the seed-box, pan, or bed, they are apt to damp-off, therefore prick them off as soon as they are large enough to be easily handled. Let the plants be well hardened before planting them out at the end of March or in April.

Broad Beans.—A sowing of early Mazagan may now be made in deeply-dug soil that has been well manured for some previous crop. Broad Beans transplants with good results, and some seed of this variety or Early Longpod may be sown in boxes and afforded the same kind of treatment as that needed by early Peas.

Miscellaneous.—Proceed rapidly with digging and trenching; keep up the supplies of salading by sowing, or planting, or blanching, as in the case of Endive or Chicory—a little at a time, and often.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Peaches and Nectarines.—The older varieties of the Peach—Royal George, Grosse Mignonne, Noblesse, Bellegarde, and Barrington—and Elruge Nectarine, if started now to be forced, will be ripe in June; whereas the newer ones, as Early Alexander, Waterloo, Amsden June, and Hale's Early, Peaches Early Rivers, Lord Napier, and Nectarines, will be a month before those. The temperature of a Peach-house at the commencement should range from 50° at night, to 55° in the daytime, with fire heat alone, with a rise of ten degrees at the sunshine. In severe frosty weather about 45° at night will be preferable, the use of much artificial heat at night being injurious to the trees, and progress can always be made by day in sunny weather. Let the houses be closed soon after noon, syringing the trees once or twice a day, and damping borders and paths, &c., more or less frequently according as the weather is sunny or the reverse, and affording ventilation by the top sashes or ventilators gradually. At the time of starting examine the soil, and if this be found to be only moderately moist, afford one good application of water, and do not afterwards allow the soil to get into a dry state.

Figs.—Trees, the forcing of which is commenced at this date, have a long season before them, and which is necessary if the best results are to be obtained from them, as it allows of a second crop of fruits maturing. Previously to starting the trees, wash them with an insecticide, to remove scale, and well scrub the woodwork and hot-water pipes, and limewash the walls. If the trees are in a fruitful condition, and the border is filled with their roots, it will suffice to clear off the surface-soil and replace it with turfy loam, mixed with one-sixth part old mortar-rubble, one-twentieth wood ashes, and one-fiftieth bone-meal. If the soil is approaching dryness, afford a thorough application of tepid water. A suitable degree of warmth at first is 50° at night, 55° by day, with fire-heat alone, but allowing a rise of 10° if the sun should shine. When the wood-buds begin to push visibly, increase these temperatures about 5°. Let the house be ventilated in the morning whenever the outside conditions make it desirable or safe, and close the house at an early period in the afternoon. Syringe the trees at the commencement once only on sunny days, and at other times, if the atmosphere of the house should be dry, let only the floors and the border be damped. Earlier-started trees having begun

to make growth may be kept at 55° to 60° at night, 65° by day with fire-heat, and 75° by sun-heat, allowing a rise after being shut early of 5°. Ventilating must be cautiously done, in order that cold air be not admitted in a draughty fashion, but increasing the amount a little at a time at the top of the house as the temperature rises by sun-heat, bearing in mind to close the house early. In mild weather a trifling amount of ventilation may be given at dusk, to remain through the night, except during snowstorms or in very severe weather. Let the syringing be done early in the afternoon, in order that moisture may dry up before night, and always ply the water on the lower sides of the leaves. Disbud and remove superfluous shoots; and before any of the young shoots reach the glass, let them be tied to the trellis.

Early Fruiting Figs which may be growing in pots plunged in mild bottom-heat, unless this is afforded by hot water, will require fresh material added occasionally, in order to maintain a bottom-heat of about 75°.

Peaches.—The trees for furnishing late fruit should be kept very cool, short of allowing the water in the hot-water pipes to freeze. The pruning, dressing, and securing of the trees to the trellis should be carried out forthwith; and any that show signs of weakness should be top-dressed, after taking away the soil down to the roots. The same kind of soil as that recommended in a previous Calendar for Vine-borders is very suitable, with the addition of a 6-inch potful of bone-meal instead of a 5-inch one.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Annals Suitable for Bedding.—Of these plants I will mention a few, giving methods of raising and treating in general. The Tom Thumb varieties of Antirrhinum may be obtained from the seedsman in three distinct colours—white, yellow, and red or crimson, the height of the plants being between 6 inches and a foot; and for forming the edgings to large flower or shrub-beds, or filling smaller ones, these Antirrhinums can scarcely be surpassed. The seed may be sown this month or next in slight heat, and the plants pricked out in boxes at about 4 inches apart when large enough to handle, using a small quantity of half-rotted manure at the bottom of the boxes, into which the roots will penetrate, and keep the soil from falling away from the plant when planting them. The plants can be planted with safety in the early part of May, providing they have previously hardened-off. The best of the white Antirrhinums is Queen of the North, the flowers being large and pure white; the plants grow from 12 inches to 18 inches high, and the flower spikes stand erect above the foliage; for filling large beds, and as a pure white-flowered variety, it has no equal. *Calendula officinalis*, in its several varieties, is another fine annual for bedding-out, flowering continuously all the season. The finest varieties of this plant are Orange King and Lemon Queen: the names indicate the colours. The flowers are large and well formed, and the plants grow 1 foot high. The same kind of treatment in raising the seedlings is required for this as for the Antirrhinums, excepting that they may be pricked-out into a frame, and planted out a little earlier in the season; they are excellent subjects for planting in dry or poor soil. Annual *Chrysanthemums* are very useful plants for filling large beds. The varieties vary in height from 18 inches to 2 feet, and the colours of some of the species are very pretty. *C. carinatum* has a white-and-yellow band, with a brownish centre; *C. carinatum* Purple Crown is a dwarf-growing variety, growing 8 inches in height, and the flowers are a mixture of purple and scarlet, and that of the foliage a bright yellow. The seed should be sown in February or March, broadcasting it thinly in a frame, or in boxes, and planting out in May. *Dianthus Heddergii*, the Japan Pink, and *D. chinensis*, the Indian Pink, are plants whose beautiful colours of various shades lend themselves to bedding purposes with good effect. The plants vary in height from 6 inches to 1 foot. If seed be sown in February or March, and the seedlings pricked-out as advised for Antirrhinums, the plants will be ready for the beds in May. This plant succeeds better if treated as an annual than as a half-hardy biennial. *Godetias* have been greatly improved in recent years, and for filling beds in flower-gardens they are very fine. The varieties vary in height from 6 inches to 18 inches. The dwarf variety of Lady Albemarle, with its bright crimson flowers, is well adapted for the edging of beds con-

taining white-flowering plants; Duchess of Albany is pure white, and is also very useful; *Gloriosa* has very dark-red flowers; and Bridesmaid, white ones, which are striped with rose; all of which are very effective plants. They are of bushy habit, and this should be borne in mind in planting them. *Nemesia strumosa*: this, as a bedding annual, was to have had a great future. There are many varieties, but the most effective is a rich orange, and the beauty of a bed of this one is not easily forgotten, possessing, as it does, a colour that is peculiarly its own. The end of January is the time to sow seeds of *Nemesias* in heat. The seedlings should be potted off into small 60's, as the plants require a gradually hardening-off before planting them at the bedding-out season. *Phlox Drummondii* is a well-known annual, but not so extensively used as a bedder as the richness and variety of its flowers would warrant. It is rather long in coming into flower, but after it does so, it continues with great profusion the whole of the autumn. The chief secret in managing *Phlox Drummondii* is not to let the plants get any check to growth before planting-out time, for should the growths get woody in the least degree, growth is slow, and the flowers few. Marigold Legion of Honour, for ribbon-borders, small beds, and as an edging-plant, has no equal among annuals. It grows 9 inches in height, and has flowers of a bright yellow tint, with a brown blotch on the florets. It is a variety always coming true from seed, and the plants maintain a uniform size. No other annual flowers more freely, or suffers less from drought. Sow the seeds in February or March in mild heat, prick out the seedlings in a cold-frame, or into boxes, and it will be ready for bedding-out at the usual season.

General Work.—Take up and relay turf on uneven lawns and much-worn and reduced verges; re-gravel and turn walks that are much worn or very dirty, and all grass edges and verges. In mild weather box-edgings may be relaid. Keep the brooms in frequent use; and during wet weather get all the necessary quantity of pegs, labels, Dahlia and Holly-hock-stakes prepared. Newly-planted trees and shrubs should be examined, and if they have become loosened by wind make the ground firm about the stem, affording stakes where required. Keep all beds and borders clear of weeds by hand-weeding, and where it is the practice to employ shoots of evergreens in the flower-beds, remove the worst looking, filling the gaps thus made with fresh ones.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Glorias.—A few tubers may now be placed in a box or pan, in a mixture of leaf-mould and sand, and placed in a warm house to start.

Caladiums may be similarly treated to the *Glorias*, or they may be potted in small pots in a compost consisting of loam two-thirds, leaf-mould one third, and plenty of sand, plunging the pots in a slight bottom-heat, and afford water sparingly.

Anthurium Scherzerianum.—Plants that have been removed for some weeks from the stove may again be introduced into the stove; they delight in plenty of heat and moisture, and in being syringed three or four times a day if plenty of heat is at command. If a large number are grown they can be flowered in succession.

Small Edging Plants, and Subjects for House Decoration.—If it be desired to increase such plants as *Panicum variegatum* and *Tradescantia zebrina*, and young plants are better as edging than old ones, cuttings may be put thickly in 54's and large 60-pots, using a compost of two-thirds loam and one-third leaf-mould, with sufficient sand as will keep the whole of the soil porous and sweet, and the drainage sound, the plants requiring a good deal of water when in full growth. Let the cuttings be placed in a close, moist heat, and shaded from the sun. *Selaginella denticulata* cuttings, or rooted bits of this plant, should now be inserted in the same sized pots and soil as advised for *Panicum*. If the *Selaginella* be used to cover the pots and bare parts of the stems of plants employed in the dwelling, or as table decoration, shallow pans are well adapted for rooting it in, or a foot wide border of it may be planted at the back of a vinery. It will grow in any moderately warm house, placing the pots in a coal-ash bottom, and shading them from bright sun. When struck, remove the pans, &c., to a cool-house or pit. *Pilea muscosa* and *P. m. nana* may now be propagated by inserting three cuttings round the side of a large 60's pot, using a smaller size pot for *Pilea m. nana*; they soon strike if placed

in heat, and should then be removed to the greenhouse.

Marantas.—Those plants which have been afforded a period of rest, and are in need of repotting, should receive immediate attention. If a pit or frame with a good bottom-heat is at command, plunge the plants half or fully, and they will start freely into growth. Strong, robust-growing species and varieties do well in a fibrous loam, one-seventh of manure, and a liberal addition of sharp sand and charcoal. Some varieties do best if a certain proportion of lumpy peat be mixed with the compost. If the plants do not require larger pots, reduce the ball considerably.

The Forcing-house.—Batches of Lilacs, *Deutzia gracilis*, *Azalea mollis*, *Kalmia latifolia*, *Staphylea colchica*, and *Rhododendron hybridum* should be brought from the cold pits into the forcing-house, washing the pots, and resurfacing where needful.

Miscellaneous.—*Petunia* cuttings may now be put in; plants of *Acalypha* which have become leggy may be cut back, and the tops employed as cuttings, inserting these in small pots, and plunging in moderate bottom-heat. *Dieffenbachias* which have lost their bottom leaves may be cut down, and the tops inserted as cuttings, the stems being cut into short lengths, and placed in pans filled with a light compost, or laid in cocoa-nut fibre in a propagating-box, and afforded a close moist heat. Plants of *Libonia floribunda* now coming into flower may be transferred from the stove to a warm greenhouse. *Lachenalia* blooms will require to be secured to neat sticks in good time, and the plants liberally manured in order to ensure good flower-spikes.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorking.

Erises, &c.—The present is a suitable season for the examination of *Erises* and other purely epiphytial species. These plants are very liable to be infested by scale on the upper and lower surfaces of the leaves, and low down in the growths. If much infested, freeing them of scale requires great care, so as to do it without injuring the leaves. *Erises* *Fieldingii*, *A. Lapeuræ*, *A. Houlettianum*, *A. suavissimum*, *A. crispum*, *A. expansum* *Leonæ*, *A. affine*, *A. virens*, *A. Lobbianum*, *A. odoratum*, *A. Savageanum*, *A. Lawrenceæ*, and *A. Sanderianum*, grow best in the East Indian-house, and these species should be taken first in hand, the increasing light and warmth causing them to start early into growth, at which time no disturbance of the roots may take place. After cleaning the plants of insects, those that are unsightly from loss of leaves, or which have not enough root-space, should be repotted. Those growing in pots that are sufficiently large, if the plants are healthy, will have many roots adhering to the sides of the pot, which are difficult to dislodge without mutilation, and such plants should be laid on their sides, and have all the old material picked out, dead roots removed, and the whole mass washed out with the syringe and tepid water. After doing this, replace the drainage, and fill up amongst the roots with freshly-picked sphagnum moss, squeezing it moderately firm. When it is necessary to repot a plant, it should be removed from the pot with but little disturbance to the roots. Tall specimens when repotted should be secured to strong neat stakes, and thus hindered from swaying about, that might cause loss of leaves. Air roots when long enough should be pegged down to the moss, which they will in time root into. Let repotted plants be stood in a group at the warmer end of the house, and protected from strong sunshine independently of the other occupants. Damp well between the pots twice or thrice daily for the space of a few weeks, but afford no more water at the root than will enable the sphagnum to grow. Flower-spikes appearing on the plants that have been disturbed, or are in a weakly condition, should be pinched out as soon as observed.

Celia bella, *C. macrostachya*, and *C. Bauriana*, now starting into growth, may be repotted should it be required. In repotting, half fill the pots with clean crocks, and employ as the rooting material peat and sphagnum moss in equal proportions, and a moderate quantity of crocks. The plants require a very light place in the East Indian-house, and water to be liberally afforded till the pseudo-bulbs attain their full size.

Dendrobium Dearei, now growing freely here, is often found difficult of cultivation; and after repeated experiments, I have found that it will thrive when suspended near the roof on the north side of the warmest house, where there is plenty of subdued light. Although growth has begun, the plants

will not be heavily watered before new roots emerge from the young growths. The younger leaves being liable to attack from red spider, should be often cleansed with a bit of sponge, and warm soft soap-suds.

Galeandra Devoniana, a plant of which is now in bloom here, is also a troublesome species under cultivation. It thrives treated as advised for *Dendrobium Dearei*.

Thrixpernum Berkeleyi.—A pretty plant when in flower, but care must be taken not to afford much water to the plant, or the flower-spikes now appearing may decay. It succeeds at Burford low down on a stage in a very shady part of the East Indian-house.

Odontoglossum-house.—Plants of *Oncidium superbiens* and *O. undulatum* are now showing their flower spikes; and owing to the rambling habit of these spikes, which often grow to 8 or 10 feet in length, some amount of training is a necessity, and in doing this the tips of the spikes should be kept well up to the roof. The plants need an abundance of water until the flowers open.

THE HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Apricots.—It will be necessary to prune these now, as owing to the mild weather this season, the trees will probably flower earlier than usual. Prune in such a manner that the growths will be kept as close to the wall as possible, and thus be the better protected. Owing to its stiff, short-jointed habit of growth, the Apricot does not form such regularly shaped trees as Peaches, but the branches should be kept as straight as possible. Train in young growths wherever there is room for the trees to extend, and between the older branches, shortening also all the spurs that project 4 inches or more from the wall, and if any spurs have no buds at the base, remove them entirely. Unless very carefully pruned, spurs upon old trees are very apt to get into such condition, and when this is the case, renovation must extend over four or five seasons, by removing a few of the longest spurs each year. Be very careful that no old nails press the branches too closely, as gumming and canker are easily provoked in this tree. Old walls that have become dilapidated through frequent nailing should be repaired, in order to prevent damage by woodlice and earwigs, both of which are especially fond of this fruit, and would harbour in the crevices.

Protecting Material must be in readiness, but do not put it over the trees until the flowers show colour. Glass copings fitted on iron brackets are the best, or deal-boards may be used; either should be so arranged that they may be easily removed when not required. From the front edge of the coping double fish or other netting should be hung to within 1½ feet of the ground, and may be tied to Beaux-sticks placed in a sloping direction against the wall at distances of 16 feet apart, with the lower end made firm in the ground. If Frigi-domo or similar material is used, it will be necessary to remove it on fine days, which will be best accomplished by having rings fitted to the blind at top and bottom to work on wires, one to be fixed on the edge of the coping, and another on short posts at the bottom, 1½ foot from the ground, and 4 feet from the wall. The blinds may thus be moved backwards and forwards horizontally, and must be moved to a fresh position each time; branches of Spruce Fir and Yew also make a good protection against frost, if fixed to the wall at intervals, but are not so readily removed as nets, and are apt to exclude air and the bees.

Scions for grafting must be removed from the trees before growth commences. Select firm, well-ripened shoots of moderate strength, attach a label to each variety, and heel them in firmly close to a north wall or a similar moist place, where no sunshine can reach them. If dry weather occurs, give them enough water to keep them fresh.

Labels.—All newly-planted trees should be provided with permanent labels as soon as planted. Metal labels having the names in raised letters may be easily obtained, and should be nailed to the wall about 1 foot from the centre of the tree; or in the case of pyramid and bush trees, may be secured to one of the main branches with copper wire. Metal labels may also be made at home during bad weather, if a set of ¼-inch type be obtained—each letter should be fitted on the end of a punch for impression by means of a hammer; a set of numbers should also be got to record the year of planting. Use sheet-lead ½-inch thick, cut into strips 5 inches by 2 inches, and print the names on these. They can be secured

to trees in the open by bringing the two ends together over a branch that can be easily reached,

THE APIARY.

By EXPERT.

Surplus Combs and Frames.—To work successfully by the "extracting" method, a good supply of surplus combs or frames will be required, and there is no reason why these should not be of the most convenient size for tiering up with, and kept solely for that special purpose. Nor do we see how there can be any great objection to their use for that purpose, even by those who consider the standard frame the most suitable for the brood nest. My point is this:—Judging from the signs of the times, it may be assumed that by far the greater portion of our surplus honey will in the future be got by tiering or "storifying," and we are quite sure that any bee-keeper (who knew what he was about) having his choice between a box of combs 5½ inches deep, or a similar one in which they were 8½ inches deep, would unhesitatingly choose the former for tiering up with. Having used these shallow frames many years for storing surplus honey intended for "slinging," I greatly prefer them to deeper ones. The combs are not so easily fractured in the extractor, they are more quickly sealed over by the bees, and more readily uncapped. I get my frames more solidly filled with honey, and by the judicious use of foundation we get at least 80 per cent. of them worked with comb down to and all along the bottom bar. Other obvious advantages will suggest themselves to the bee-keeper without my specifying them in the detail. If standard frames be purchased in the flat, they are readily reduced to our ideal of a tiering frame by sawing off 3 inches of the side bars before nailing up.

Excluders.—Another point I would emphasise, and that is the imperative need for the use of excluders made of zinc when tiering. Many object to this because it hinders a free passage to and fro on the part of the bees, but after testing hives side by side, with or without zinc, I find the difference in the amount of honey gathered to be infinitesimal. Now if the expenditure of time and labour is to be minimised, we must keep our surplus boxes free from brood—we do not want to be "always anxious" as to whether the queen has got into them or not—and as to queens pushing their way through the zinc, the chances according to my own experience are so much against it, that I never give a thought to such a contingency. At all events I can safely say that not 5 per cent. of ordinary normal queens will deposit brood in surplus boxes if zinc be used.

Extracted Honey.—It is certain that extracted honey in bulk is a more valuable commercial commodity to have left on hand, than that which is stored in the comb; indeed, I may say the latter is almost unsaleable—after it has crystallised or become solid—unless it be melted down and the wax extracted from it. Those who have a quantity of each kind by them, will readily realize the difference. The bee-keeper can keep his extracted honey till prices improve, it may be in good demand before the present year is out, at a much higher figure than it would fetch if sold now, and it will take no harm by keeping, provided it was fully ripe when extracted. One of the advantages of tiering with shallow frames, is their suitability for regulating the amount of storage room as the honey income fluctuates. It is an exceptionally poor season in which one box of fully-sealed combs cannot be secured, and if, after adding a second box under the first, the income suddenly fails, leaving the latter only partly filled, the contents may be extracted or left for the bees' consumption, at the pleasure of the bee-keeper, while the first box is found to be in prime condition. Since it is of importance to economise time and labour in every direction to enable us to produce honey cheaply, I do not advocate the constant or even frequent use of the extractor in the height of the working season. It is hard work and a July temperature, coupled with the excitement inseparable from it, makes it hot work, while the evils resulting from a rough-and-tumble method of doing it may be better imagined than described. Besides, if surplus honey is safe (that is, if it is sealed over) it is far best left in that finest of all places for ripening it, i.e., the top of the hive where it has been gathered. As the season closes these boxes full of ripe honey can be taken indoors, to be extracted *en bloc*, or as required. I used to think that honey would not pay the producer if it was sold for less than 1s. per lb.; and the only way to make it remunerative at present prices is to reduce in every possible direction the labour and cost of securing it.

EDITORIAL NOTICES.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, JAN. 23 { Royal Botanic Society: General Meeting.
WEDNESDAY, JAN. 26 { Annual Meeting of Royal Scottish Arboricultural Society.

SALES.

MONDAY, JAN. 24 { Border Plants, Bulbs, &c., at Stevens' Rooms.
TUESDAY, JAN. 25 { Azaleas, Roses, Greenhouse Ferns, American plants, &c., at Protheroe & Morris' Rooms.
WEDNESDAY, JAN. 26 { Japanese Lilies, Continental Plants, Tuberoses, Gladioli, &c., at Protheroe & Morris' Rooms.
 { Rose and Fruit Trees, Shrubs, &c., at Stevens' Rooms.
THURSDAY, JAN. 27 { Hardy Perennials, Fruit Trees, Azaleas, Hardy Climbing Plants, &c., at Protheroe & Morris' Rooms.
 { Border Plants, Shrubs, Roses, Climbers, &c., at Stevens' Rooms.
FRIDAY, JAN. 28 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—**38° 5'.**

ACTUAL TEMPERATURES:—

LONDON.—January 19 (6 P.M.): Max., 54°; Min., 49°.
PROVINCES.—January 19 (6 P.M.): Max., 54°, west, south, and east of England; Min., 42°, north-west Scotland.

Weather mild, dull, and foggy.

Two documents recently received show that the Society is in a very flourishing and active condition. The first is the Report of the Council to be presented to the annual meeting on February 8, of which we reprint the substance in another column. To it is attached the balance-sheet, which is satisfactory, and the list of Fellows and affiliated societies. The second document contains the arrangements for the year 1898, comprising the details relating to the meetings, shows, and publications, an account of the garden at Chiswick, and of the trials to be therein conducted during the present year, the regulations for the examinations, and a statement of the privileges now accorded to Fellows in the way of chemical analyses of soils, manure, water, &c. The Council in this new departure have secured the services of Dr. J. A. VOELCKER, 22, Tudor Street, New Bridge Street, E.C., as Consulting Chemist. The rules for the use of the Library are given in detail, and much has been done to improve the collection, and render it more accessible to Fellows and others. The names of the members of the several committees are added, and a statement given of the regulations affecting each committee. Among the new arrangements, we notice the offer of a Silver Cup by Mr. N. N. SHERWOOD, the Master of the Worshipful Company of Gardeners. This Cup, of the value of 10 guineas, is to be awarded to the exhibitor "who shall obtain the highest total number of marks at the meetings in June, July, August, and September 6" for collections illustrating the suitability of annuals and biennials as cut flowers for decorative purposes."

We may here add that the Rev. GEORGE HENSLOW, V.M.H., has been appointed Professor of Botany to the Society, an appointment which, though long delayed, will give great satisfaction to the Fellows. Messrs. NORMAN COOKSON, JAMES DOUGLAS and THOMAS GABRIEL retiring from the Council by rotation,

and it is proposed to fill the vacancies so caused by the election, if the Fellows see fit, at the annual meeting of Sir FREDERICK WIGAN, Bart., J. GURNEY FOWLER, and JAMES HUDSON, V.M.H.

Horticultural Training at Kew.

WE frequently receive enquiries from correspondents as to the facilities offered to the young men employed at Kew for improvement in practical horticulture. Some are under the impression that the training is more botanical than practical, whilst others appear to think that "influence," or a "premium" are needed to get a young man in there. Many of our readers, of course, know as well as we do that Kew is open to all, and that ability is the only "premium" required. It may, however, serve a useful purpose if particulars are furnished as to the character of gardeners employed, and the nature of the work done by them whilst at Kew.

The garden staff consists of curators, foremen, sub-foremen, and journeymen. Labourers also are employed, chiefly for outdoor work, and are practically permanent. The journeymen gardeners, numbering about fifty, are employed principally under glass. Their term is limited to two years (a year in the case of foreigners). Sub-foremen are promoted young men who show exceptional ability, and they usually remain until they obtain an appointment either in India, the colonies, or at home.

The terms of employment are stated in the following form of application:—

"Applicants for admission as gardeners into the Royal Gardens are furnished with a copy of this paper, which, when filled in, must be signed by their present or last employer, and returned to the Curator, accompanied by a letter in applicant's own handwriting, and with testimonials from employers or practical gardeners.

The wages are 21s. per week, with extra pay for Sunday duty.

Applicants must be at least twenty, and not more than twenty-five years of age, and have been employed not fewer than five years in good private gardens or nurseries. They must be healthy, free from physical defect, and not below average height.

No application will be entertained from men who have not had experience in the cultivation of plants under glass.

The applicant will be informed if his name has been entered for admission, and, on a vacancy occurring, he will, if appointed, receive notice to that effect. Should there be no vacancy within three months from the date of the application, it must be renewed if employment at Kew is still desired. If not renewed, the name will be removed from the list of applicants.

Gardeners whose conduct is satisfactory, will be eligible, as vacancies arise, for the positions of sub-foremen at Kew, and for such employment at home, or abroad, as may be at the disposal of the Director.

Name
 Age
 Employer's signature....."

The duties of these men are the care and cultivation of the collections of plants under the direction of the foremen, each man having a definite charge for which he is responsible. They are moved from one department into another periodically, so that a man who does the full two-years' course usually has a certain amount of experience in every department. During the day his work is practical gardening pure and simple. He is encouraged to take an interest in maintaining the collections in the best possible health, whilst habits of tidiness, finish, order, economy of materials and smartness generally are insisted upon. For about ten hours every day he is therefore employed in

potting, cleaning, training, watering, &c. The men employed in the houses to which the public have access, keep watch on the behaviour of visitors.

Courses of lectures are given by stipendiary lecturers for the benefit of the gardeners in the evening after working hours, in a lecture-room provided by the authorities. The subjects dealt with are Systematic Botany, Economic Botany, Geographical Botany, Chemistry and Physics. Certificates are awarded to men whose notebooks show satisfactory study. A Field Botany Club is also formed, and prizes as well as certificates are awarded for collections of dried, mounted and named British plants. A Mutual Improvement Society holds weekly meetings during the winter, essays and discussions upon professional subjects being contributed by the men themselves, one of the officials acting as chairman. Prizes for the best essays are given by Sir JOSEPH HOOKER and others.

A well-stocked library is provided for the use of the gardeners, who have access to it every evening until ten o'clock. It will be seen that the young men at Kew are not "coddled," and that skill in practical horticulture is a *sine qua non* in their training both before and after their arrival at Kew. The Director has said:—"We treat our young men as 'men,' and expect them to work out their own salvation. We wish them to be manly, self-respecting, and strenuous; we put, with the aid of the Government, what help we can in their way, and leave them to make an intelligent use of it."

Five years' ago a Guild or Association of Kew gardeners, past and present, was formed, and it has since published annually a Journal in which there is a list of all the members with their positions and addresses. From this it appears that there are about 500 "Kewites" distributed all over the world. The majority of these are still professional gardeners, but a considerable number fill positions of responsibility either as curators of Botanical Gardens, superintendents, &c., no fewer than fifty-three hold such positions in the Colonies and India, whilst the curators of all the Botanical Gardens in the United Kingdom were trained at Kew. Many are head-gardeners, and some are now nurserymen.

There is here evidence sufficient to show that the system in practice at Kew is on the right lines. Of course, a great deal depends upon the intelligence and zeal of the man; but given these to commence with, the progress made in professional knowledge from a two years' course at Kew is most marked.

It cannot be too often insisted that horticulture is an art which can only be learnt by actual practice, like the making of boots or the building of a ship, and he who has had much practice in good gardens is a better gardener, other things being equal, than he who has had less. Education, both of a scientific and of a general character, has the same effect in a horticultural calling as in any other. The contention of those who take what is termed the practical side, in opposition to the theoretical side, so-called, is simply this—that the man who is taught in the class-room how to cultivate Orchids, or Peaches, or Peas, has a poor chance against the man who has learnt this work in the garden. Such, at any rate, is the lesson that is taught by what one sees at Kew; at the same time, the man whose brains are trained as well as his hands, can learn his lesson the more quickly, and turn it to account when the mere practical man has, in this respect, no advantage over his forefathers.

ROYAL GARDENERS' ORPHAN FUND.—We have the pleasure to announce that CHARLES E. KEYSER, Esq., has kindly promised to take the Chair at the Annual Festival Dinner of the Royal Gardeners' Orphan Fund, on Wednesday, the 20th of April next, at the Hôtel Métropole.

KEW PALACE.—A paragraph, sent us by a news agency, of which we made use last week, adding some comments of our own, contained some annoying blunders which escaped our notice at the time. "Princess" CHARLOTTE, of course, was never "Queen" CHARLOTTE. It was the Queen who died at Kew Palace; the Princess died after child-birth, at Claremont.

rendered good service to his native country on important occasions. The army also paid to M. Linden's memory that tribute to which his rank as Commander in the Order of Leopold entitled him. Detachments of various infantry regiments greeted with a volley the body of the departed at the exit from the mortuary chapel and at the entrance to the church; the King sent his private band of Guides, who played funeral marches from the Rue Belliard to the Church of St. Josse-ten-Noode. The scientific, horticultural, literary, and artistic world, and the magistrates were largely represented. A number of the horticultural societies of the country were associated for the occasion. A number of telegrams

botany and horticulture by M. Linden. M. Paul Hymans spoke as the representative of the old students of the Brussels University; and M. Em. Lebrun, in the name of the staff of L'Horticulture Internationale, bore testimony to the respect and admiration in which their late chief was held, and expressed sympathy with the surviving members of the family.

— We omitted to mention that the details of M. Linden's career that we published last week were reprinted from an earlier volume, and were originally derived from an article in the *Illustration Horticole*, by M. Rodigas. In an advance-sheet of the forthcoming number of the *Bulletins d'Arboriculture*, &c.,



FIG 21.—COOL FERNERY IN THE BELFAST BOTANICAL GARDENS. (SEE P. 50.)

FUNERAL OF M. JEAN LINDEN.—The respect shown to the memory of the late JEAN LINDEN on the occasion of his funeral bore testimony to the esteem in which the deceased was held. The King, on receipt of the news of the death caused his Maréchal de la Cour to express to the bereaved family his sympathy with their loss. The King was also officially represented at the funeral by one of his Generals. The Government of the Grand Duchy of Luxembourg sent a message of condolence to M. Lucien Linden, and instructed the Comte d'Ausembourg, the Chargé d'Affaires, to represent them at the funeral. Jean Linden had been Consul-General of Luxembourg, and in that capacity, when that district had no minister in Belgium, he

of condolence, wreaths and crosses of natural flowers were sent. The *chapelle ardente* was filled with fine Palms and with flowers, among which stood the bier. Among the Orchids, *Cattleya Trianaei* and *Odontoglossum crispum* were conspicuous, being species particularly esteemed by M. Linden. There was also a branch of *Malpighia ilicifolia*, the first plant brought home from his voyages by M. Linden in 1838, and still in existence in the houses of L'Horticulture Internationale. At the grave-side, various orations were pronounced. M. Kegeljan, an old and valued friend, paid an eloquent tribute to the deceased; M. Em. Rodigas, in the name of the Ecole d'Horticulture and the Chambre syndicale des Horticulteurs Belges, spoke of the valuable services rendered to

with which we have been favoured, we find that in a speech delivered by M. Rodigas, on the occasion of the funeral, M. Linden is credited with having introduced no fewer than 230 Palms, and 650 new species of Orchids to our gardens! Two closely printed columns of the *Semaine Horticole* are devoted to a list of the names of the plants discovered or introduced by him. It is probable, however, that this list has been drawn up without opportunity for revision.

RETARDING FLOWERS OF ORCHIDS.—It is well known to gardeners, that the flowering period of the Lily of the Valley may be retarded by keeping the rhizomes in an ice-cellar for several months. In this

way, the lovely May-flower may be had in August and September. It is certainly the wish of many an Orchid-grower to induce his plants which flower in the dead season, to bloom at a later time, when their cut-flowers are of higher value. That this is not impossible was shown, says our Berlin correspondent, Dr. DAMMER, at the December meeting of the Berlin Horticultural Society, by Mr. DE COENE at Französisch-Buchholz, near Berlin. *Odontoglossum grande* flowers here under normal conditions at the beginning of October. At this season the flowers are of little value, but they would fetch a much higher price if they could be had at Christmas, the New Year, or in January. With this aim, Mr. DE COENE cultivated his plants. He kept them dry until the beginning of June, and that the state of rest of the plants might be as perfect as possible, he took the plants with their roots out of the pots. In the month of June he allowed the plants to grow, and this they did so well, that the bulbs became quite strong and the flowers were partially open at Christmas. At the meeting on December 30, half a dozen strong plants in full flower were exhibited, whilst a good many other plants in the nursery were still in bud, and will open their flowers during January. If this mode of cultivation proves practicable with other species, and it is no doubt that they will be so, then a good many Orchids will be of higher value than hitherto. It would be interesting to learn whether this cultivation has been already applied to other Orchids.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held on Monday, January 24, 1898, when a paper will be read by Mr. A. A. HUDSON (Associate), entitled "Surveyors as Arbitrators." The chair will be taken at 8 o'clock. The adjourned discussion on the paper read by Mr. F. PUNCHARD (Fellow), at the last meeting, entitled, "The Royal Commissioners' Suggested Amendments to the Agricultural Holdings Act, 1883," was resumed and concluded. Notice is given that the Annual Dinner of the Institution will take place at the Holborn Restaurant (King's Hall), on Wednesday, February 9, 1898, at half-past 6 o'clock precisely.

ROOFING FELTS.—Messrs. D. ANDERSON, of Belfast, have submitted to us specimens of their roofing felt, which is well adapted for roofing out-houses or sheds, or for lining slate roofs or wooden structures. When exposed, the felt requires an occasional coating of tar to keep it in good condition. Their marginal hair fabric for covering exposed pipes will save many a "burst."

NORTH PECKHAM AMATEUR CHRYSANTHEMUM SOCIETY.—The annual dinner of this Society will take place on Thursday, January 27, at the Bridge House Hotel, London Bridge, with W. BEAN, Esq., President of the Society, in the chair. A numerous company is expected to attend the function, especially gentlemen connected with the publishing and printing trades.

A RED-FLOWERED MARÉCHAL NIEL ROSE.—Our Rose-gardens are to be enriched by a red Maréchal Niel, the flower of which, it is said, is very large, well-shaped, full, and in form of bud and flower like the yellow M. Niel. It is likewise very sweet-scented, and blooms abundantly on the one-year-old wood; grows strongly, but less so than its yellow namesake. The colour is carmine-red. It is a seedling from Pierre Notting and M. Niel.

THE ADVERTISER'S "A. B. C."—This useful directory, compiled and published by Mr. T. B. BROWNE, of 163, Queen Victoria Street, London, E.C., consisting of 1051 folio pages of letterpress and illustrations, is almost indispensable in the offices and counting-houses of merchants and tradesmen. The volume commences with an advertisement picture-gallery that includes many of the more striking pictorial advertisements of the day. This is followed by a directory in brief, and indices giving the names of all newspapers, magazines, and reviews published in the United Kingdom and Ireland; and succeeding it are lists of those published in the metropolis, and those of the provinces in extended order, with much information concerning each of

value to the intending advertiser or subscriber. Lastly, we have the colonial press directory, with scales of charges for advertisements appended to the notices of the various newspapers, and specimen front pages in the smallest type, filled with advertisements of most of the more important ones. The imports, or the aggregate trade of the various colonies for either the year 1897, or a series of years, form a part of information afforded.

TRIFACIAL ORANGE.—M. DELCHEVALERIE, in his account of the *Parc Public de l'Ezbekieh, Cairo* (Ghent), p. 11, already noticed in these columns, gives the following particulars regarding the trifacial Orange: "Citrus Bigaradia, has long, pointed, often woolly leaves; the petiole is in some cases winged, in others not so. The flowers are white, but tinged with violet outside. When this tree was raised at Florence it was proposed to graft it, but the stock having grown out beneath the graft, it was noticed that the tree bore two sorts of leaves. It was therefore left to fruit. It was at first supposed that two branches, one of the Citron, the other from the Orange, had been grafted simultaneously, and had become united, but, as has been said, the tree produced shoots beneath the graft. Whatever the reason, the foliage shows this peculiarity, that the branches were intermixed. At Paris, at HUWARD'S, there was formerly a specimen sixty years old bearing fruits partly Citron, and partly Orange. At Cairo, in the garden of V. R. DE CHOUBEAU, formerly the residence of MEHEMET ALI, was one of these eccentric Orange trees from which we have gathered fruits of a three-fold form and nature, one third of each being Orange, one third Citron, and one third rough-skinned Citron."

BRITISH NURSERYMEN AND ENTERPRISE.—A week or two ago, in referring to the number of foreign seed and plant catalogues received at this office, and printed in English for circulation in Britain, we remarked that so far as we were then aware, few, if any, of our home nurserymen took the trouble to print the catalogues intended for circulation on the Continent in the language the recipients could best understand. We have now received two copies of Messrs. COOPER, TABER & CO.'S seed catalogue, one of which is printed in the German, and the other in the French language. We congratulate the firm, and shall be pleased to receive testimony that other houses are equally alive to the importance of being as up-to-date in their methods as are their competitors.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—This excellent Institution held its annual general meeting (H. J. VEITCH, Esq., in the Chair) at "Simpson's," Strand, London, on January 20. The business was of the usual routine description, consisting of the presentation of the committee's report, and the accounts of the Institution; the election of officers for 1898, and the election by ballot of candidates to become pensioners on the Fund. The various resolutions were passed with unanimity. The report stated that during 1897 eighteen pensioners had died, four of whom left widows, and three of these have been placed on the pension list, at £16 per annum, in succession to their late husbands. The names of two pensioners whose circumstances had changed during the year had been removed from the list. The total number of pensioners was 167. Owing to a legacy left by the late J. W. Thompson, at one time gardener to King George III., for the benefit of a widow or widows, it was resolved to put on the pension list the name of the widow who received the highest number of votes among the unsuccessful candidates. Including this widow there were thirty-five applicants over and above the number elected to the funds, which was fixed at nineteen. In consequence of John Battersby, of Carrington, Nott., aged 73, annual subscriber of £1 1s. for thirty-five years; John Berry, of Prestwich, Manchester, aged 74, annual subscriber of £1 1s. for fifteen years; Daniel Boreham, of Rydes Hill, Guildford, aged 71, annual subscriber of £1 1s. for seventeen years; George Daniells, of Alfreton, Derbyshire, aged 62, annual subscriber of £1 1s. for eighteen years

William Davidson, of Coleford, Gloucester, aged 72, annual subscriber of £1 1s. for thirty-two years; Thomas Ffoulkes, of Newcastle, Staffordshire, aged 70, annual subscriber of £1 1s. for fifteen years; John Mit-chinson, of Truro, aged 76, annual subscriber of £1 1s. for twenty-three years; John Perkins, of Thornham, Suffolk, aged 73, blind, life member for fifteen years, also contributed £50; John Rolfe, of Herus Hill, aged 63, annual subscriber of £1 1s. for thirty-six years; and Silas Warr, of Woolston, North Cadbury, aged 71, annual subscriber of £1 1s. for nineteen years—being in distress, and having in every way complied with the rules and regulations, the Committee recommended that these ten applicants be placed on the Pension List without the trouble or expense of an election, in accordance with Rule III. s. 5. The above ten candidates having been elected unanimously, a ballot took place for the remaining nine. The following are the names of the successful candidates, and the number of votes recorded for each:—

HENRY ELLIS	...	...	...	...	4219
THOS. BUNDAY	...	...	...	...	3900
ROBT. BEGHIE	...	...	...	...	3878
JAS. BAKER	...	...	...	...	3868
WM. WOOD	...	...	...	...	3790
DAVID CORNELL	...	...	...	...	3663
GEO. HEWITT	...	...	...	...	3651
EDWIN THOMAS	...	...	...	...	3559
LYDIA ROSE	...	...	...	...	3534
ELIZABETH McCULLOCH (J. W. Thompson bequest)	...	...	...	...	3031

The Annual Friendly Supper is being held, under the chairmanship of ARTHUR W. SUTTON, Esq., of Reading, as these pages are in the press.

PUBLICATIONS RECEIVED.—*Bulletin of the Botanical Department, Jamaica*, October to November, 1897, contains, among other articles, papers on Movements of Plants, and Elementary Notes on Jamaica Plants.—*Bulletin of Miscellaneous Information*, Royal Botanic Gardens, Trinidad, January, 1898; devoted to descriptions of the Ferns of the West Indies and Guiana (by G. S. Jenman), and dealing with Genus 1, *Hymenophyllum* and 2, *Trichomanes*.—*The Canadian Horticulturist* for December, 1897. This number includes a paper by F. W. BURR on the Loganberry, a new fruit, of the trials of which satisfactory results are reported. It is said to resemble a red Blackberry, and to have the habit of the Dewberry.—*Journal of the Board of Agriculture*, December, 1897. Among other articles is one on an Orchid-bug, *Phytocoris militaris*, to which *Dendrobium Phalaenopsis* is particularly subject. The insect is imported with the plants, and spraying with quassia and soft-soap have proved more efficacious against it than tobacco-powder.—J. DAVENPORT & SONS, brewers, Bath Row, Birmingham, *Pocket Diaries*, in cloth and leather binding, handy, durable, and provided with much useful information for every-day use.

THE GROWTH OF APPLE-TREES.

AN outcome of the frequently-recurring agitation on the subject of British fruit is, that method in pruning is claiming more attention, with the result that the old-fashioned rule-of-thumb practice of hard-pruning for fruit is giving way to a more sensible treatment of trees. Those who see clearest are being persuaded that the over-use of the knife has much to answer for in the matter of fruitless and unhealthy trees. Pruning is at its best but an artificial way of attaining certain objects, such as adapting the trees to a limited space, or reducing them to some unnatural form, but it has been indulged in so long, and so commonly, and the knife is such a fascinating instrument, that it has long been a part of the gardeners' creed to prune and prune, as if Dame Nature deserved no consideration.

From the time a scion becomes established on its stock till the tree is worn out, it is frequently pruned with severity, although it may show all the while by the thickets of Willow-like shoots that it is a practice resented by Nature. To curtail the spread of a tree, and to produce a symmetrical form of the crown, much labour must be expended in summer and in winter, and from a productive point of view this labour is worse than lost. I grant that fruit-trees

must occasionally be thinned, and that the reduction of length in a branch here and there may be necessary sometimes, but trees grown as nearly as possible according to Nature from the scion or seed have very little tendency to make redundancy of branches, consequently but little thinning of such trees is ever needed. Given a start of a sufficient number of branches to form the main arms of a tree, the less these are

some of the very best fruit-buds; and, worse than this, the buds lower down the shoots develop thereby into gross fruitless growths, instead of fruit-spurs. One plea for shortening branches must not be overlooked, and that is, that it is necessary for strengthening weak ones; but I hold that if one quarter of the time now spent with the knife in a harmful way were devoted to securing shoots that show abnormal weak-

and in a year or two the growth made annually becomes less and less, and is fruitful. I have devoted some care to the raising of seedling Apples, and am pleased so far with the result, in regard to shapeliness and promise in seedlings now six years of age. These have never been touched with the knife, and yet they bristle with fruit-buds and spurs. I can say with confidence that no more shapely or evenly balanced trees than the majority of these seedlings can be produced under any method of hard pruning. If this is so with seedlings, why not with grafted or budded trees? J. C. Tullack, *Livermore Park Gardens, Bury St. Edmunds.*

LÆLIA AMESIANA, CRAWSHAY'S VARIETY.

The flower of Mr. Crawshay's variety of *L. Amesiana* (see fig. 22) differs from the original in possessing petals of greater breadth, and sepals that are whiter at the base, and of a brighter purple tint at the tips, as are also the tips of the petals. The side-lobes of the lip are marked with a dark claret-crimson colour like the front-lobe. It was shown by the owner at the meeting of the Royal Horticultural Society on January 11 this year (see report in *Gardeners' Chronicle* for January 16, p. 47).

HOME CORRESPONDENCE.

THE KAKI, LOTI, OR DATE-PLUMS (DIOSPYROS KAKI VARS.).—I am very glad to hear that the Kaki has fruited at Kew under glass for five years or so, and I am also very pleased indeed to hear that at Bitton, in "a Gloucestershire garden," Canon Ellacombe has succeeded in fruiting it in the open air. I wish that Canon Ellacombe would tell us what treatment his fruiting specimen has received, how long it has grown at Bitton, and also give us some notion as to the size and flavour of the fruits. There are now in cultivation in South Europe and America, as well as in Japan, a numerous series of varieties large and small, some of the kinds being seedless, while others produce from four to eight seeds, not unlike flat Date-stones; hence, no doubt, the popular name of Date-Plum. The United States Department of Agriculture (*Division of Pomology, Bulletin No. 6*) has recently published a catalogue of fruits recommended for cultivation in the various sections of the United States by the American Pomological Society, and on p. 33 of this catalogue an analytical list is given of eleven varieties of *Diospyros Kaki*, all except the variety *costata*, having Japanese names. So far these varieties are only recommended for the warmest southern states, such as Florida and the Gulf Coast of Alabama, Mississippi, Louisiana, and Texas below 100 feet elevation. In North Carolina, South Carolina, and Georgia, below 1000 feet elevation and in Alabama, Louisiana, and Mississippi, between 100 and 500 feet elevation, and in warm parts of other states such as Texas, S.E. Arkansas, S.E. Missouri, S. Illinois, W. Kentucky, and Tennessee, below 500 feet elevation; of the eleven varieties named only one reaches the highest number of ten points for quality, viz., "Tane Nashi." Varieties called "Okame," "Yedo-ichi," and "Kurokoma," are next highest with five to six points each, and then come *costata*, Hachlya, and "Taber 129," each with four to five points; the remaining varieties being "Hiyokume," "Tsuru," "Yemon," and "Zengi," which only scored three to four points each. The colours are given as being black, brown, carmine, dark orange red, and salmon, and in size these sorts vary from $1\frac{1}{2}$ inch to nearly 5 inches in diameter. The common or wild Persimmon (*Diospyros virginica*) has long been one of the wild fruits of the United States edible only after the first frosts, and even then not liked by everyone who eats it; and by the same token there are very diverse opinions as to the edible qualities of the Japanese kinds. Writing from Nico lately, Mr. Woodall says, that there, *Diospyros Kaki* has become a popular fruit in the market, and that it is most effective on the dish, or as piled up in heaps, or in baskets on the stalls. He further adds, that, "when quite soft and transparent it is a delicious fruit, but that it is not given to everyone to be patient enough to wait for that happy moment; hence, foolish people call it rough and astringent, while to those who wait, it is like a huge Apricot, melting and delectable." As to hardiness, there is no doubt but that the *Diospyros Kaki* will withstand our hardest winters on



FIG. 22.—LÆLIA AMESIANA, CRAWSHAY'S VARIETY.

shortened the sooner will fruit spurs develop, but accompanied by very few superfluous shoots. Any one may prove for himself what an effect the omission to prune has on production of fruit spurs by leaving the leading young growths intact for two years, as in the second year they become studded with spurs from the base to the tip, but, and this point should be noted, the largest and earliest spurs to mature into blossoming and fruitfulness are found near but not quite up to the tips of these shoots, so that even the so-called moderate shortening of branches cuts away

ness into place, both strength and fruit would come, and that two years before a tree, treated to an annual shortening of two-thirds its growth, would give a fruit. Many varieties of the Apple which are noted for not affording fruit whilst young, do not require half the time they usually take, if they are allowed to grow in size quickly. One thing which may deter some gardeners from allowing the development for which I plead, is the great length of the shoots made the first year after the shortening of shoots has been given up, but this excess of growth is soon moderated,

a wall; but it does not follow that it will ever prove a satisfactory fruit-tree as grown in the open air. Mr. G. F. Wilson, years ago, fruited it in a orchard-house, and as a fruit-tree it will, I believe, only be a success with us as grown under glass for at least part of the season. The fruits are so handsome, however, and as Mr. Woodall says, so "melting and delectable" when perfectly ripened, and they come in, moreover, at such a dull time of our year, that they are doubly welcome, and will I am sure soon recommend themselves wherever fruit culture under glass is carried on. *F. W. Burbidge*. [We received some lately from Algiers; one caught at the right moment was delicious, the others formed an unsavory rotten mass. *ED.*]

TREES AT MOTTISFONT ABBEY.—I observed the recent illustrations of noble trees at this fine old place with particular pleasure, having seen the original two or three times, some thirty years ago, when visiting the late Mr. Jones there, in the days when Lady Baskerville was alive. Huge as the great Plane-tree was then, it is certain to have increased in bulk and size of crown during the interval. No doubt the vigour of the tree is very much due to the fact that it has ample space, and that its roots have obtained access to the waters of the river Test, which flows somewhat sluggishly along the edge of the lawn, and near to the tree. With respect to the rooting of the lower branches, I think there are few more interesting trees so affected than is the huge Horse-Chestnut at Ruxley Lodge, Esher—a tree as handsome in culture as it is noble in dimensions. Several giant branches of this tree have become embedded in the mossy lawn, and it is evident they are deeply rooted in the soil. The interesting character thus presented is all the more noticeable in winter, when the tree is bare of leaves. It is, I fear, much too large a tree to get focussed into one picture. No doubt these rootings have been aided by the bark of the branches being abraded by friction with the ground, then, becoming buried, they have readily rooted. I should very much like to hear whether the ancient pollard Oak that thirty years ago stood on the river-bank some half mile above the Abbey at Mottisfont is still existing. It was then one of the patriarch trees of the kingdom, and I think its hollow trunk at 3 feet from the ground was 35 ft. in circumference; and all about the ground there was an exudation of bark-growth like to an eruption of lava. Such patriarchs of the forest merit all protection and preservation. *A. D.*

VIOLAS.—Your correspondent, Mr. William Sydenham, of Tamworth, ought to be an authority upon the subject of Viola cultivation, considering the vast number of plants whose culture he superintends so successfully. I am obliged to him for his observations regarding my recent contribution to the *Gardeners' Chronicle*. Any article upon such a theme must necessarily be incomplete for the number of new Violas (each, of course, infinitely superior to its immediate predecessor!) is such as to be utterly perplexing, if not absolutely distressing, to the most conscientious cultivator of Violas. I am glad to learn that Violas bloom for so long a period at Tamworth; it must indeed be very gratifying to Mr. Sydenham to have them flowering so late as January, and so early as March. I regret that, as I do not possess the special varieties to which he alludes (*Britannia*, &c.), I am not in a position to pronounce any opinion regarding their merits. Yet of this I feel assured, that many of the more venerable varieties which are still universally cultivated and admired, will not soon be superseded. "A thing of beauty is a joy for ever." I have finally to express my gratitude to Mr. Sydenham for his kind invitation to visit his garden, which must, I imagine, be very attractive when his 200,000 Violas are in bloom. *David R. Williamson*.

PRUNING APPLES AND PEARS.—Your correspondent, Mr. Kettle, still misconstrues my remarks on the pruning of maiden, standard, and bushes of Apples and Pears. If Mr. Kettle will be good enough to concentrate practical ideas into such a form as to indicate clearly to readers of the *Gardeners' Chronicle* wherein my practise is at fault regarding the "building up of large fruitful trees in as short a time as possible," and at the same time make clear a better or more practical method of doing this, he will be doing them and myself a great service which we shall all of us appreciate. But the running from one point to another of the subject, firing random shots by the way which fail to hit the mark,

does not commend itself to your readers, or tend to elicit sound information thereon, as I feel sure your correspondent is desirous of doing. Mr. Kettle says, in reference to the pinching of the summer growths resulting from the pruning of "misplaced" shoots back to 2 inches, "the said 2 inches would only have undeveloped buds, which in effect," he says, "are all wood-buds," adding, "whereas if they were left at greater length the buds would be more fully (?) developed, and only one (seldom more) would make wood, the buds behind such being fruit-buds." How does he arrive at this conclusion? Are not the buds on restricted growths more plump, more developed, than those on unrestricted growths? Mr. Kettle would allow the "misplaced" surplus shoots to remain at their full length, i.e., to become crowded, rather than sacrifice the terminal fruit-buds by the 2-inch pruning method." And he goes on to say, "If the 5 to 9-inch system be practised, it will be years before you get a dozen fruits, and many more before you gather a gross;" adding, "I prefer long growths and fruit—long spurs (!) and fruit, rather than trees dwarfed with 5 and 9 inch pruning." The words "5 and 9 inch and 2-inch pruning," appear to have had a magical effect on the mind of your correspondent, seeing that he has mixed them up, and repeats them so frequently irrespectively of the meaning which their application by me clearly conveyed. The remarks of mine on Pruning Apples and Pears, misinterpreted and criticised accordingly by your correspondent, apply solely to maidens, as stated at the time, which I practically recommended to be pruned once, with the result that stocks which were grafted in the spring, say of 1896, each scion being furnished with three wood-buds, and (these having pushed into free growth, were pruned back to from "5 to 9 inches" the winter following, each pruned-back shoot producing from three to five growths this year (1897), thus giving to each tree fifteen shoots from last year's (1896) cut-back maidens. I shall be much obliged to Mr. Kettle if he will kindly state, in these pages, a quicker and better method of establishing large fruitful trees. *H. W. Ward*.

A HALL FOR HORTICULTURE.—This discussion has drifted away to a side issue, owing to a remark of mine which Mr. Dean contested. His last contribution to the controversy shows plainly the helpless bondage of the N. C. S. to the Royal Aquarium Company—a most humiliating condition for a society that calls itself a "National" one. The title should, I think, be altered to the Royal Aquarium Chrysanthemum Society. Mr. Dean says I have no personal knowledge of the profits which the Aquarium Company derive from the N. C. S., and goes on to mention various items of cost to them that the shows occasion; but no figures are given by him whereby one may judge of the aggregate amount. Surely Mr. Dean, as an official of the N. C. S., has examined this matter and could give a more convincing answer than he has done on p. 45. Staging would only need paying for once, and deal-boards are cheap. Labour and assistance at shows figure largely in the balance-sheet of the N. C. S., so it is not all supplied by the Royal Aquarium Company; only a portion of the lighting can be specially called for by the N. C. S. But I need not go through the list. Mr. Dean has probably enumerated everything (but without any figures), and has advocated the cause of the Royal Aquarium more strongly than the N. C. S. But if the Aquarium Company is put to a heavy expense over these shows, the N. C. S. is also, as I find £839 for prizes, and £503 for other expenses, mainly connected with the shows and subscriptions in 1896, making a total of £1347 expended; for this magnificent expenditure (which is a credit to the N. C. S.) it is allowed by the Royal Aquarium Company the sum of £300; the rent of space amounts to £120; tickets sold, £51—a total of £471, which is given back to the N. C. S. If, as Mr. Dean contends, the Aquarium Company derives no profit from this arrangement, I can only add that it certainly ought to do so. Mr. Dean appears to entirely mistake my meaning in the sentence referring to the further encouragement of Chrysanthemum culture, and I assure him I did not make the statement, as he suggests, "without thinking about the matter." It is not always advisable to write all that one thinks, but my contention was this:—"If the N. C. S. had all the profits arising from its shows, it would be able to do far more work than it has done hitherto. I willingly admit that it has done much valuable work in the past, and those members who have assisted so conspicuously and gratuitously deserve the thanks of all—more especially as regards the valuable catalogue. But I would

ask, Does nothing more remain to be done? and would not the Society be able to do much more if it had a good reserve-fund, and reaped all the benefit derived from its shows? Mr. Dean mentions £55 being added to the reserve-fund in 1896; if the profits of the four days' show in November had gone into the funds of the Society, this sum would probably have been hundreds of pounds. The total reserve and balance of the National Chrysanthemum Society at the commencement of 1897 was £115 8s. 10d. I could mention a small Chrysanthemum Society in a country town of about 10,000 inhabitants, which has just completed its fifth year, and has already nearly half as much balance as the National Chrysanthemum Society. *W. H. Divers*.

—I have read the correspondence that has appeared on the subject of a hall for horticulture in the *Gardeners' Chronicle*. I should like to see one erected, but to have such as one we have at Peckham, and to make it pay its way is another matter. I have carefully read the correspondence, and I am of the opinion of Mr. R. Dean—that is, there must be some extra attractions of some kind or another, or the visitors, after having examined the flowers, will not know what to do to beguile the time. None but enthusiasts will linger over the blooms. I can assure you, as an assistant-secretary of the North Peckham Amateur Chrysanthemum Society, and the hon. secretary will bear me out, that at our exhibition, after the public have examined the blooms, they at once adjourn to the concert-room, or go down to the ball room, which is crowded. These facts will, I think, bear out Mr. R. Dean's statements, that the visitors like variety for their money; and for London the most suitable show place is the Royal Aquarium, Westminster. I feel sure that if we had nothing beyond flowers as an attraction, our endeavours to hold a flower show would have ended in failure. We had more than 4000 visitors in the four days the exhibition lasted, and now we require a larger hall in Camberwell. *William Nichols*.

—Mr. Dean has attempted to prove that the Aquarium Company is put to an enormous expense in connection with the exhibition, &c. of the National Chrysanthemum Society, and he quotes printing, advertising, posting, and "many other ways." These items are to be found in the balance-sheet of last year, where it will be seen that about £700 was swallowed up by expenses, and paid for by the National Chrysanthemum Society, this amount being quite independent of the prizes awarded. Will Mr. Dean kindly inform us why the National Chrysanthemum Society requires such an enormous expenditure, that is far in excess, by comparison, with the sums spent by many of the most important Provincial Societies. In the balance-sheet we have Luncheons £30, Annual Dinner £18 (by whom are the invitations sent out?), banquet £93, stationary £28, stamps, &c. £37, special Jubilee ditto £30, show expenses £51 (are not nearly all show expenses?), clerical assistance £75, ditto 7 commissions (to whom?) £11, sundries £11; allowance for extra labour, gas, firing, &c., Jubilee show £25, and Royal Aquarium charge for tickets and commission on subscriptions £53. Bearing in mind that Mr. Dean has informed us that there are 1,500 free passes issued, and the Royal Aquarium Company finds gas and light, are not these items to the total of £75 rather peculiar? Mr. Dean recommends Mr. Divers to try a show in some place in London, depending upon the gate-money to reimburse the outlay. No sane person would attempt such a scheme; but to some extent, such show should depend upon subscriptions, which in the case of the National Chrysanthemum Society amounted to about £300, to say nothing about the handsome profit made from the affiliated Societies. *A. M. N. C. S.*

EUONYMUS IN THE ISLE OF WIGHT.—I herewith send for your inspection a few sprays of *Euonymus*. During upwards of forty years that I have been here, I think I have never seen the bushes flower and fruit so freely as they have done this present season. The bushes from which the enclosed were taken are growing within a few yards of the sea-shore. *David Smith, Gardener, Isle of Wight College, Ryde, I.O.W., January 17.*

FRUIT-TREE LABELS.—Mr. Ward's remarks upon such labels in the Hardy Fruit Calendar for December 25 lead me to mention that ordinary roofing or guttering lead is very suitable material where they can be nailed or wired on. It should be cut into pieces as long and as deep as is necessary to take the name required, and two small holes should be punched, through which to pass the nails or wire. Iron

letter-punches are necessary, and each punch should have 3 inches of spare iron attached, so that it can be held by the hand while the imprint is being struck on the lead. Each letter is then painted white. Such labels last almost a lifetime. The first cost may be considerable, but I think they are most economical in the end. I enclose a sample label, but I do not suggest the contrivance is a new one, for it has been in use here a number of years. *J. Mayne, Bicton.* [The label enclosed, which bears in unmistakable distinctness the words "Keswick Codlin," is similar to those we have seen in use in many gardens for naming trees against walls, the labels being nailed to the wall. It is an excellent and simple device, and Mr. Mayne does well to call attention to such an imperishable type. It is one which has been in use from time immemorial. Ed.]

STATE OF VEGETATION IN SOUTHERN WALES.—I have recently commenced taking my spring rounds in the counties of Carmarthen and Pembroke, and have been surprised at the very forward state of vegetation, especially in Pembroke. The wild Primroses varying in colour from pure white to dark rose and yellow adorn the hedgerows, giving them quite an April appearance; one could gather basketfuls in a few yards. I have gathered Snowdrops daily since Christmas Day, and carried home last Monday a bouquet of wild flowers consisting of yellow Nippelwort, Wild Strawberry, Herb Robert, and the Chrysanthemum leucanthemum. On Tuesday, I picked two blooms of the Tenby Daffodil, just opened from a shady lane in Pembroke, and in the same spot many Daffodils are just ready to burst open. The flower most common, however, just now is the Heliotrope scented Tussilago fragrans, and patches of the plant several yards in extent can be seen all about Pembroke, filling the air with fragrance. *J. H. Mason, Carmarthen.*

VIOLETS IN FRAMES DAMPING OFF.—I notice in your "Answers to Correspondents" that you attribute insufficient ventilation as the cause, but it is not necessarily so. Our Violets used to suffer very much from damp, although I never had the frames closed in fine weather, and on a very fine day would have the lights pulled quite off the plants. We are near the sea, lie very low, and have a lake a mile and a-half long, so that our situation is naturally a damp one, and sometimes, during dull and foggy weather, everything is saturated for two or three days together. I find the best preventive against damp, with careful ventilation, is to have the plants well established in their winter quarters early. If possible, plant them there in spring, but failing this, plant early and carefully with a good ball, and keep the crowns well up. I have always found late and deeply-planted plants suffer most. Last April I planted runners in a frame rather closely, kept them close, moist, and shaded for a few days until growth commenced; then gradually hardened off, planted them in frames for winter early in August, and kept shaded and syringed for a few days. The results will lead me to do it again. During the summer I kept them well watered and syringed occasionally with clear soot-water. *T. Down, Wassand, Scaton, Hull.*

FRUIT JUDGING.—In criticising my notes on the above, "H. W. W." (p. 30) ignores the fact that I especially alluded to the Royal Horticultural Society's great autumn fruit shows, my reason for selecting which was, that the varieties to be exhibited in the single-dish classes at these shows are arbitrarily set down in the schedule, and include both Apples and Pears that should cover the season from the date of the show until the following May or June—the latest varieties, in fact, that are grown being among those selected, and rightly so. If my critic's dictum as to ripeness out of season being a merit is to stand good in such classes, it means nothing short of having a lot of good fruits spoiled; and I should like to know where the line is to be drawn. Possibly "H. W. W." would like to see such Pears as Bergamot d'Esperen, Easter Beurré, Josephine de Malines, Winter Nelis, and the like, shown in a ripe state in September; also that the same thing should follow in the case of late Apples. If so, I certainly disagree with him, and I doubt very much if any gardener who has to supply ripe fruit through the season could be found to agree. All that is wanted is to show fine fruits of the particular variety selected; and if it is one not yet in season, ripeness should be considered no merit. For instance, let us take Josephine de Malines Pear. It is well known that this may be had in a ripe state in November, but then what about the dishes for the dessert in February? In assuming that the fruits shown "of the same variety" are

"equal, or nearly so, in size or shape," "H. W. W." assumes too much; for in the cases which I ventured to criticise it was not so, the fruits selected for prizes being decidedly small. I remember a case in point last year, where the judges were apparently undecided in their action. The 1st prize went to a dish of small and ripe fruit; the 2nd to much larger, equally shapely, but green fruits; and the 3rd again to a dish of ripe fruits. The dish here selected for 2nd prize was absolutely faultless, and nothing but the attractive ripeness of those placed 1st gained them their position. Again, taking exhibits of collections of Apples or Pears, I should like to ask your correspondent which would be of most value to the private gardener, a dozen dishes of Pears which would cover, say, six months' supply, or as many dishes all ripe at the same time? The best collection of fruit is the one which covers the longest season, provided the quality is of the best throughout, and the sooner judges cease to be sensible to the glamour of mere ripeness, the better and less artificial will be the methods of exhibitors. I am sorry that my use of the words "dead ripe" needs explaining to "H. W. W.;" I thought that term was well known to convey the meaning of full ripeness, and not the rottenness he suggests—that, at least, was my meaning, and I must apologise for having led him astray. *Cornubian.*

NURSERY NOTES.

A "NEW YEAR'S SHOW" AT READING.

(Continued from p. 4.)

THE GIANT PRIMULAS.—After all, these are the most handsome strains, and will repay any extra attention they may require. They are later-flowered than the others, and were not in full bloom when we saw them. Messrs. Suttons' Giant White is procurable with plain or with fern-leaved foliage. The plain-leaved one has flowers quite 2½ inches across, and they have a pretty orange centre; the flowers of the fern-leaved variety are less flat, and more fimbriated. Both are excellent Primulas in any respect. Giant Pink is an extra good strain, blooms early, and for a long time continuously, the colour being full and pleasing, and the habit vigorous. One of the latest to flower perfectly is Giant Crimson, rich in colour when at its best, having a dark eye, and borne on stout stems, well above the foliage.

Our attention was also attracted by varieties of Primulas that must be termed—

NOVELTIES,

there being insufficient seed obtainable from them to catalogue such at present. Some of them are sent out in the "mixture" packets, with others not regarded as fixed, and termed "hybrids," the word being used in this instance to describe varieties only. The darkest coloured double or single flowered Primula at Reading is known in each case as Black Prince. The double variety may only be seen at present with plain leaves of moderate size and very dark purple in colour, but the single flowered appeared with plain and fern-leaved foliage in different batches. The flowers are bright velvety crimson-maroon, and have a purple ring around the disc that appears to cast a halo over the flower. Such dark-flowered Primulas will be certain to become popular very speedily, as they are so distinct, and the tint so rich. A few plants there were of another strain also, with plain leaves, and a flatter, better flower than the preceding, but were just as intensely coloured, and will probably be known by the same name. A novelty exists, too, in the only bluish-flowered variety, possessing light-coloured stems—almost white; it has plain foliage, and with its very pretty lavender-tinted flowers the plant has a decidedly fascinating and delicate appearance.

But we shall only stay to mention two others of the newer ones, and the first is Giant Scarlet, a variety that will be sure to please, as it produces large, beautiful flowers, that vary in tint according to their age and the amount of sunlight, but are always bright. Giant Lavender is the other pretty novelty. We have yet to mention the—

STARRY PRIMULAS,

that made such a beautiful display at Reading;

one need not enquire why such a type is being received with favour. One good-sized span-roofed house was filled with plants just coming into full flower. As decorative-plants they are more effective than any other Primula, and the abundant flowers of star-like form (by which we mean that the petals do not overlap or meet each other) are exceedingly pretty. Some are white, with yellow eye, others are lavender tinted; and, again, there are rose or pink flowers, in which a coppery hue may be detected. They are upright in growth, both flowers and foliage have deep purple stems, and the flowers grow tier after tier until a perfect and graceful pyramid is formed.

Primula obconica was represented by some very healthy looking plants in a frame, but we believe the species has still refused to cross with others, and the variations that exist are from its own seed only, or from cultivation.

In several other houses we hastened to admire the beautiful display made by the—

VARIOUSLY COLOURED CYCLAMENS,

for capital strains of which Messrs. Sutton & Sons have long since acquired a merited reputation. It may be doubted which is best known, White Butterfly or Giant White; but each is equally good. The former has a dwarf habit, the pure white flowers are more spreading, and the foliage is elegantly marked. Giant White has a handsome, bold appearance, upright in growth, larger leaved, and the flowers, which are 3½ inches across, and of great substance, of pure florists' form, are produced higher above the foliage. Other strains in every respect praiseworthy, include flowers of crimson, purple, salmon, pink, rose, cherry-red, crimson-and-white, &c. The crimson-and-white flowers are extra fine, and clearly and brightly coloured. The most noteworthy "fixed" novelty was Salmon Queen, a strain that attracts attention at once by its lovely and distinct salmon-pink flowers; the foliage, too, is handsomely marbled, and moderate in size. Vulcan is strikingly effective by reason of the extra dark ruby-red colour of its flowers, it being the deepest-coloured one in the collection. A curiously tinted one named Purple Queen is noteworthy as showing a shade of colour similar to one almost peculiar to Sweet Peas. The Cyclamen plants of all strains are but a year or so old, have small foliage, sometimes very prettily marbled, and the flowers are of erect growth that require no supports—at any rate, when cultivated as they are at Reading. The colours also being bright and distinct, the strains would be superior ones for market growers.

We saw other plants at Reading: Herbaceous Calceolarias, and Cinerarias in frames; all of them well grown, stocky plants that are certain to flower well. A visit during the next week or two will be sure to amply repay in interest and knowledge those who may make it, and every plant seen will present a perfect picture of cleanliness, skilful cultivation, and uncommon finish.

SCOTLAND.

OSWALD HOUSE, EDINBURGH.

A VISIT to the gardens of this establishment, the town-house of J. Buchanano, Esq., is always of interest, the houses at all seasons of the year being bright and attractive with flowering plants, while among the Orchids some novelties are sure to be found. Chrysanthemums were almost finished, yet some good blooms were still in evidence at the time of my visit of the best varieties. Mr. G. Wood, the gardener here, was the winner of the 1st prize for the group of Chrysanthemums at the last exhibition at Edinburgh. Leaving the fruit-houses, which were receiving their annual cleaning, we came to the Orchid and flowering-houses, where Primulas obconica and sinensis are in force; the variety Sutton's Star being a favourite one for cutting, on account of its lightness and durability when cut. Zonal Pelargoniums, Heaths, and Hyacinths combine to make quite a gay appearance. In the house containing

these plants are the celebrated specimens of *Epiden-drum* (Nsnodes) *Medusa*, grown so well here, and which are being increased as fast as they will grow. Of other Orchids, to the growth of which four houses of a span-shape are set apart, those in flower comprised *Sophronis grandiflora*, *Masdevallia tovarensis*, *C. Massangeana* in large baskets, with very strong spikes; *Lælia anceps rubra*, a good dark variety. In one house some good examples of *Abgræcum sesquipedale* are grown, in a temperature which Mr. Wood informs me sometimes falls to 50° during the winter, and is seldom above 60°. In this house a specimen of *D. speciosum Hilli* was pushing up a large number of spikes; *Brassia maculata*, and a batch of *Aërides* and *Vandas* in excellent health. Some pretty plants of *D. Cassiope* bore a large crop of flowers, forming one of the most useful of winter-flowering Orchids.

Steve plants look in a vigorous condition, and the foliage generally well coloured. Some good plants of *Eucharis amazonica* are among the most showy; *Crotons* in numerous varieties are grown in quantity, while Palms of large and small size are in favour here; Ferns, including *Davallias*, 4 and 5 feet in diameter; *Dracænas* and other plants necessary where indoor decoration is carried out, were noted; and throughout an air of cleanliness and good arrangement is observable. H.

LADY BELHAVEN'S RESIDENTIAL SEAT IN LANARKSHIRE.

Some of the finest pieces of free-clad demesnes are situated in and around Hamilton, and have been vastly improved since Sir John Watson, Bart., acquired his extensive holding. Tree and shrub-planting has been the order of the day. Remodelling the foreground has taken place with great judgment, and the emerald lawns form a fine foil for the designs of arboreal subjects dotted down, and for the wavy furniture of evergreen and deciduous tree and shrub life. The principal trees are Oak, Beech, and Sycamore, which will girth 3 feet from the ground over 3 feet, and all show a vigour that is telling among the subsidiary and lesser subjects of evergreen-tree life. The ground-work is covered with the finest named *Rhododendrons*, and they are going along with a vigour that is pleasing to the eye, and are studded with flowering buds that give promise of a wealth of bloom in the return of the flowering season. These, along with *Azaleas*, and many other now leafless shrubs, will cover with floral beauty, and give a charming tone to the various shades of greenery which spring revives. The fine drives which have been put down are lined with grand groups and specimens of variegated Hollies, and the whole dress-grounds fronting the mansion are so furnished as to please the critical eye of the best landscape gardener.

The kitchen garden reminds one of the one at Wishaw House, the original property of Belhaven and Stenton. A new range of glass-houses is in course of erection, covering 400 feet; the chief lean-to houses are to be planted with Peaches, Nectarines, and Vines; and the span-roofed houses are to be filled with plants for furnishing flowers for general decoration. There are various specimens introduced, and the houses are all commodious, such as will provide both an abundant supply of fruit and flowers for the needs of the family.

The new trees introduced are largely of the coniferous tribe. I was glad to see the Douglas Fir in fine order, and covering considerable breadths, as also the Crimean Silver Fir (*Abies Nordmanniana*), as also *Abies nobilis*, which is growing freely among other associates. Altogether it is a charming spot, and will prove a welcome auxiliary to Sir John Watson's estate of Earnock, which lies into and round about it.

EARNOCK HALL, HAMILTON.

This estate was acquired by Sir John Watson, who has turned it to the greatest advantage. 1. By opening up the mineral wealth, putting down such shafts, and lighting-up passages and areas so as to enable the workmen to work the mineral out with ease and economy. In this way the great industry of Lanarkshire, Ayrshire, Dumbartonshire, and other con-

tiguous counties have been fed, and the needs of the people supplied at reasonable prices. The pits in operation have increased, and the turn-out keeps the railways very busy for 100 miles round. His success in this way won him the title of Sir John Watson, Bart., of Earnock, which was a very popular title in this neighbourhood.

Earnock House has been added to, considerable wings have been constructed and finished in the most approved style, and the house is fit for any nobleman or country gentleman that aspires to take the lead in the locality where he fixes his abode. The residential portion is situated on the banks of the river Cadzow, and is a land for the poets to discourse upon; the scenery is more than delightful, and flocks of the people take advantage of the free access to the charmed spaces. Its owner is a poet of the people. He has retained the idiom of the Scotch dialect, and it is a treat to hear him toss off some of Robbie Burns' famed pieces, such as "The Snadrop," "The Cottar's Saturday Night," and other pieces which tell best in Burns' Scots' pure rendering. He has reached the borders of the eighth decade, and long may he be spared to preside at his hospitable table and gather round him a lot of experts, such as he had at the dinner-table on December 11. J. A.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JANUARY 11.—*Present:* Mr. Michael (in the chair); Dr. Müller, Dr. Russell, Rev. W. Wilks, and the Rev. Prof. Henslow (Hon. Sec.).

Fungus on Beech.—A box of fungi was received from Lady Cave, Cleve Hall, Downend, near Bristol. They were forwarded to Kew, whence it was reported that they were *Pleurotus ostreatus*, Jacq., "one of the best and safest of edible fungi." The specimens were taken from a very old Beech in the gardens of Cleve Hall. They were growing on the wood about 12 feet from the ground.

Report of the Council for the Year 1897-98.

The year 1897 will long be remembered as the Diamond Jubilee year of Her Most Gracious Majesty, Patron of our Society—remembered, too, for the innumerable projects set on foot in celebration of the event.

In the Report for 1896 the Council announced that they had no intention of adding to the number of projects by starting any ambitious horticultural celebration, which would lay any strain upon the resources of individual Fellows. They stated that they proposed to establish a Medal of Honour in Horticulture, and that they had obtained the sanction of Her Majesty to call it the Victoria Medal.

This proposal has been duly carried out; the Medal has been prepared, and conferred on sixty recipients distinguished in various ways in our Art and Science; and it is believed to be the only Medal associated with Her Majesty's Diamond Jubilee, with the exception of the one founded by herself. It is, moreover, the only horticultural distinction in this country that is conferred for personal merit only, and is entirely unconnected with prize-winning.

By their action in this matter the Council consider that they have commemorated Her Gracious Majesty's Jubilee in a becoming and enduring manner; in a manner absolutely distinct from all other celebrations; in a manner that lays no tax upon the Fellows of the Society; in a manner distinctly to the advantage and encouragement of horticultural skill and effort; and lastly, in a manner which will carry down to all future generations of horticulturists the memory of Queen Victoria's long and happy reign.

Under the head of ordinary expenditure at Chiswick, £1850 has been spent on the general work and maintenance of the gardens. Amongst other work, House No. 11 has been partially, and No. 10 entirely, rebuilt; whilst No. 5, devoted to Peaches, has been raised in height, and a new roof put on. All this work has been done by the Society's own staff of men. The receipts by sale of surplus produce amount to £357, making the net ordinary cost of the gardens £1493.

At Westminster, twenty fruit and floral meetings have been held in the Drill Hall, James Street, Victoria Street, and fifteen committee meetings have been held at Chiswick, besides the larger shows in the Temple Gardens on May 26, 27, and 28; and at the Crystal Palace on September 30, October 1 and 2. Lectures have been delivered at seventeen of the meetings, exclusive of those given at the Crystal Palace. The number of Awards granted by the Council, on the recommendation of the various committees, has been as

follows:—At provincial shows, 36; affiliated societies, 80; Fruit Committee, 119; Floral Committee, 502; Orchid Committee, 251; Narcissus Committee, 20; total, 1008.

The Council must again express their opinion that there still appears to be a tendency to multiply unduly the awards recommended, and they earnestly request the several committees to consider seriously whether there is not a real danger of impairing the value of these distinctions by such increase of their number; and whether it would not be possible, as well as politic, to be somewhat less generous in the recommendation of awards during the ensuing year. This is a question which the Council cannot but regard with solicitude, and they hope that every member of the committees will consider that he has a real individual responsibility for the welfare of the Society in this matter.

On Wednesday, July 14, the Council invited all the members of the several committees to lunch with them at Chiswick, and to examine the gardens. After the luncheon an address was delivered by Dr. Maxwell Masters, F.R.S., on the possibilities of an extended usefulness of the gardens. A full account of the proceedings will be found in the *Journal*, vol. xxi., p. 160.

The Council desire to draw the attention of all Fellows of the Society to the more extended use which the Scientific Committee might be to them if they availed themselves more freely of their privileges in submitting instances of diseases of, or injuries to plants, caused by insects or otherwise. The Scientific Committee is composed of gentlemen qualified to give the best advice on all such subjects, either in respect to the prevention or cure of disease. The committee is also glad to receive specimens of any subjects of horticultural or botanical interest.

The Council wish to express their thanks to the Director of the Royal Gardens, Kew, for allowing them to consult Mr. Massee, F.L.S., on the fungoid diseases, &c., brought before the Scientific Committee, and to that gentleman for his readiness in giving them the advantage of his knowledge and advice.

That Fellows, whether near or at a distance, may derive as much benefit as possible from their connection with the Society, the Council have recently appointed Dr. J. Augustus Voelcker, M.A., Consulting Chemist to the Society, and have entered into an arrangement with him whereby all Fellows who are amateurs or *bona fide* gardeners, may obtain, at a very small cost, analyses of manures, soils, &c., or advice as to what description of chemical manure will be most suitable and profitable for application to any particular soil. The Council wish to draw particular attention to two points, viz.:

(i.) That Fellows desiring an analysis must follow explicitly and exactly the directions laid down in the book of arrangements, 1898, and

(ii.) That Fellows who are in any way commercially interested in any artificial manure trade or horticultural business cannot claim Dr. Voelcker's assistance as Fellows, but if they wish to consult him must do so in the ordinary way of business.

The Society's Great Show, held (by the continued kindness of the Treasurer and 1 Beuchers) in the Inner Temple Gardens, was as successful as ever, and it is a matter of satisfaction to the Council to find that this meeting is now universally acknowledged to be the leading horticultural exhibition of this country. The best thanks of the Society are due to all who kindly brought their plants for exhibition, or otherwise contributed to the success of this show.

The exhibition of British-grown fruit held by the Society at the Crystal Palace on September 30, October 1 and 2, was, considering the season, eminently satisfactory.

A certain amount of dissatisfaction has arisen from the fact that whereas classes have been provided specially for amateurs and gentlemen's gardeners, and also for nurserymen, there have been no classes in which growers for market could properly exhibit. This will in future be avoided by the addition of a division for growers for market only.

As an object-lesson in British fruit cultivation, this annual show stands unrivalled, and is of national importance. The Council invite Fellows and their friends to support it, for it cannot be too widely known that the continuance of the show is absolutely dependent on at least £100 being raised by subscription each year towards the prize fund. The show involves the Society in a very large expenditure without the possibility of any return. The Council have, therefore, established the rule that they will not continue it unless sufficient interest in it is taken by Fellows and their friends to raise £100 towards the prize fund. Subscriptions for this purpose should be sent at once to the Secretary, 117, Victoria Street, Westminster; and if the list prove satisfactory, the schedule will be issued in April, and the show held on September 29, 30, and October 1, 1898.

A deputation was sent by the Council, at the invitation of the local authorities, to attend the great horticultural gathering at Shrewsbury in August. The Council gladly embrace this opportunity of congratulating Shrewsbury on the magnificent display of horticultural skill and enterprise made at their show, and of recording the very great pleasure which this visit gave them, and their appreciation of the great courtesy and hospitality with which they were received.

An invitation has been received and accepted for a similar deputation to visit a show, to be held at Newcastle-on-Tyne on July 13, 14, and 15, 1898, by the Botanical and Horticultural Society of Northumberland, Durham, and Newcastle-on-Tyne.

The *Journal* of the Society has been continued, so as to

enable Fellows at a distance to enter more fully into, and reap the benefits of the study and work of those actively engaged at head-quarters.

An examination in the principles and practice of horticulture was held on April 6, concurrently in different parts of the United Kingdom, a centre being established wherever a magistrate, clergyman, schoolmaster, or other responsible person accustomed to examinations would consent to superintend one on the Society's behalf, and in accordance with the rules laid down for its conduct. No limit as to the age, position, or previous training of the candidates was imposed, and the examination was open to both sexes. One hundred and eighty-one candidates presented themselves for examination.

It is proposed to hold a similar examination in 1898, on Tuesday, April 5. Candidates wishing to sit for the examination should make application during February to the Secretary, R.H.S. Office, 117, Victoria Street, Westminster.

The Council have heard with much pleasure that G. W. Burrows, Esq., a Member of the Court of the Worshipful Company of Gardeners, has most kindly offered, in connection with the Society's 1898 examination, a scholarship of £25 a year for two years; full particulars of which will be found in the Society's arrangements for 1898, lately issued to all Fellows. Another similar scholarship has been promised for 1899, by the Right. Hon. the Lord Amberst of Haakney, through the same Worshipful Company.

Acting in conjunction with the Lindley Trustees, the Council have devoted considerable attention to the Library. All serial publications have been kept up to date, a large number of valuable volumes have been bound.

The hearty thanks of the Society are due to all the members of the Standing Committees—viz., the Scientific, the Fruit and Vegetable, the Floral, the Orchid, and the Narcissus Committees, for the kind and patient attention which they have severally given to their departments.

A special and very hearty record of thanks is also due to N. N. Sherwood, Esq., and to C. J. Grahame, Esq. The former gentleman has intimated to the Council his intention of placing a 10-guinea Silver Cup at their disposal annually, and the latter has enabled the Council to very largely increase the prizes offered for Roses on June 28.

The best thanks of the Society are also due to all those who, either at home or abroad, have so kindly presented books to the Library, or plants or seeds to the gardens.

The Council wish to express, in their own name and in that of the Fellows of the Society, their great indebtedness to all who have so kindly contributed, either by the exhibition of plants, fruits, flowers, or vegetables, or by the reading of papers, to the success of the fortnightly meetings in the Drill Hall. They are glad to find by the increased and increasing number of visitors that the Society's fortnightly meetings are becoming better appreciated by the Fellows and public in general. In their judgment, these shows, which take place at short intervals throughout the year, furnish horticultural displays and teach horticultural lessons which cannot be obtained elsewhere in the kingdom.

The Council are glad to be able to announce that they have appointed the Rev. George Henslow, M.A., V.M.H., F.L.S., &c., to be Professor of Botany to the Society, and Professor Henslow has kindly undertaken to give addresses at a number of the 1898 meetings, drawing attention to interesting points connected with some of the plants, &c., exhibited. The Council are confident that these "demonstrations" will be greatly appreciated by the Fellows.

The Council have the sad duty of recording the death of fifty-three Fellows during the year, and among them they regret to find the names of Dr. Robert Hogg, one of the most staunch and energetic supporters of the Society, and the leading authority in fruit nomenclature; James Bateman, the pioneer of Orchid culture in this country, and author of the *Orchidaceae of Mexico and Guatemala*; Col. Trevor-Clarke, William Head, Robert Owen, and James Cocker, &c.

The numerical increase of Fellows after deductions is 325. A scheme for the affiliation of local horticultural societies was put forward in 1890, and ninety-one local societies have availed themselves of it. The Council express the hope that Fellows will promote the affiliation of local horticultural and cottage garden societies in their own immediate neighbourhood.

At the request of some of the Fellows, the Council have arranged to send a reminder of every show (to the week preceding it) to any Fellow who will send to the R. H. S. Office, 117, Victoria Street, Westminster, 2½ halfpenny post-cards, fully addressed to himself, or to whomsoever he wishes the reminder sent.

The Council recommend that the salaries of the principal officers of the Society—the Secretary, the Cashier, the Superintendent, and the Assistant-Superintendent, should continue as heretofore.

The balance-sheet shows a credit balance of £322 7s. 4d. The expenditure on Chiswick was £1851 6s. 1d.

SWANSEA HORTICULTURAL.

JANUARY 7.—The second annual dinner of the above Society was held in the Shaftesbury Hall, Swansea, on the above date. The president of the society, Sir JOHN LLEWELYN, M.P., in the chair; the Mayor of Swansea sitting on his right. The company present, numbering between seventy and eighty, included most of the leading gardeners in the district. The president in proposing the toast of the evening—"Prosperity to horticulture and the Swansea Association," said

he could not do himself justice without congratulating the society upon having such an able and energetic Hon. Sec. as Mr. A. K. Drummond. He, Sir John, was most anxious that the society should go on and prosper, and be the means of doing a great deal of good in Swansea and the surrounding district, for he felt sure that they had in the society the nucleus of a very important movement.

CARDIFF GARDENERS'.

JANUARY 11.—A meeting of the above Society was held on January 11, when the President, ALFRED THOMAS, M.P., occupied the chair, and an interesting lecture was given by Mr. F. W. E. Shrivell, F.L.S., to an audience of upwards of fifty members. His discourse was based on the results of four years' experiments in the culture of vegetables, with and without chemical manures. The lecturer gave the quantities used for different kinds of vegetables, and exhibited illustrations showing good results from the chemicals. Mr. Shrivell stated that he had no connection with any manure agency.

ANCIENT SOCIETY OF YORK FLORISTS.

JANUARY 11.—The members of this society held their annual meeting in the Agricultural Club Chambers, Pavement, York, on the above date. Mr. Councillor J. E. Wilkinson presided, and there was a good attendance.

The Secretary (Mr. J. Lizenby) read the yearly report, which stated that during the past twelve months the work of the society had been satisfactory. Financially, it was satisfactory to note that at the close of the year's working there was a balance in hand of £180 11s. 11d. as against £177 17s. 1d. twelve months ago. On the motion of Mr. F. W. Halliwell, seconded by Mr. J. C. Milburn, the Report, and also the balance-sheet, which was then as read, were unanimously adopted.

SOCIÉTÉ FRANÇAISE D'HORTICULTURE DE LONDRES.

JANUARY 15.—On Saturday evening last the ninth annual dinner of this Society was held at the Imperial Restaurant, Strand. Mr. HERBERT CEBURN occupied the chair, being supported by a goodly number of gentlemen representing English horticulture, among whom we noticed Mr. J. Weathers, Mr. W. Cutbush, Mr. Harry Laing, Mr. H. J. Jones, Mr. Harman Payne, &c.

The dinner being over, Mr. Geo. Schneider formally introduced the chairman to the assembled company, remarking that the position he occupied in the horticultural world and the interest he took in the work of the Society eminently qualified him for the post of honour which he had kindly consented to fill. In reply, the Chairman complimented the Society on its continued prosperity, which was due in a large measure to the admirable manner in which it was managed by its president, Mr. Schneider, and the other officers. Founded in 1838, the Society has gradually increased in numbers and in its financial resources. Its members are now distributed all over Europe, and there are some occupying important positions in America, Algeria, the Congo, and other distant places, and from these valuable information can often be obtained when occasion arises. He was pleased to find that the balance in hand was much larger than at the beginning of last year, and the library which forms one of the principal features of the Society had received many additions. He therefore proposed the continued success and prosperity of the society, coupling with the toast the name of Mr. Schneider.

That gentleman replied in suitable terms, thanking the members for the excellent spirit of comradeship that existed amongst the members, and the good feeling of their English friends who were always ready to find places for these young foreigners desiring to perfect their knowledge of English and horticulture by a residence in this country, and concluded by proposing the toast of the visitors. Mr. Harman Payne replied. At this juncture Mr. Gichlin made a presentation on behalf of the new members to Mr. Schneider for his kind services to them during the past year, which was duly acknowledged.

The toast of the officers was responded to by Mr. Friedrich. Music both vocal and instrumental filled up the remainder of the evening; "God Save the Queen," and the "Marschallaise" bringing the meeting to a close. A vote of thanks was accorded to Messrs. Cutbush, of Highgate, for the floral decorations.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JANUARY 13.—The January meeting of the above Society was held in the Coal Exchange, Manchester, on the above date. Members of the committee present were Messrs. W. Thompson (chairman), G. S. Ball (vice-chairman), S. Gratrix, A. Warburton, J. Leemann, J. Backhouse, E. Sidebotham, H. Bolton, W. Stevens, R. Johnson, W. A. Gent (Hon. Sec.), H. Greenwood, G. W. Law Schofield, J. Cypher, P. Weathers.

Each meeting of the Society brings forth quite a wealth of plants of great beauty and rarity.

On this occasion Mr. G. S. BALL (gr., Mr. Hay), displayed a superb lot of choice *Cypripediums*, the best of which was undoubtedly *C. × triumphans*, a handsome hybrid, showing a dorsal sepal of unrivalled colouring, and remarkable size (First-class Certificate). A good form of *C. bellatulum album*, with large snowy-white flowers, was also awarded a First-

class Certificate. *C. venustum* Measuresianum, a lovely little gem—too rarely seen—and which may be described as the albino of *C. venustum* received an Award of Merit. A well-grown plant of *C. Leeanum giganteum*, with four flowers expanded, received an Award of Merit. *C. Swinburnei magnificum* is a plant well worthy of its name, and when seen in such a good form as that shown by Mr. Ball, it cannot fail to find admirers (Award of Merit). *C. nitens magnificum* also proved to be of the very finest type, and it is doubtful whether such a superb form as that shown exists elsewhere. The committee were certainly too careful in only voting this plant an Award of Merit. *Dendrobium Johnsoniae*, or *Macfarlanei*, from the same exhibitor, showed a spike of nine well-developed flowers, which speaks well for the successful cultivation of this not too easy species (Award of Merit).

Mr. JOHN LEEMANN (gr., Mr. Edge), exhibited a specimen plant of *Lycaste Skinneri alba*, from which, however, some of the flowers had been removed. Six good bold flowers were displayed. *Odontoglossum crispum* var., a good form of the Pachy type, received an Award of Merit.

Mr. A. WARBURTON (gr., Mr. Lofthouse), exhibited *C. insigne* Sandwae, which showed a slight variation in the tiny spots peculiar to this variety on the dorsal sepal (Award of Merit); also *C. × Mrs. Geo. Truffaut*, a peculiar production, having for its parents *C. Stonei* × *C. Morganiae*. It therefore has traces of *C. Stonei* in it twice, and resembles *C. Morganiae* in shape and markings, except that it has more "nigger" blood in it.

Mr. W. THOMPSON (gr., Mr. Stevens) staged a few good plants, among which were *Odontoglossum odoratum* var., *deltoGLOSSUM STEVENSII* (Rolfe), a charming variety with a ground colour of creamy white, and bordered for about an eighth of an inch in depth with a sulphur-yellow, the sepals being spotted with chocolate (Award of Merit). *C. × Calypso*, Wion's var., came from the same owner, and is remarkable for the profuse claret-colouring in the dorsal sepals, making it a very striking variety (Award of Merit). *Cypripedium Salieri* also gained an Award of Merit.

Mr. THOMAS STATTER (gr., Mr. Johnson) exhibited a good form of *Cypripedium × Niobe*, with a good bold dorsal petal well-marked (Award of Merit).

Mr. S. GAATRIX (gr., Mr. McLeod) exhibited a fine hybrid *Cypripedium*, named "F. S. Roberts," the parentage not recorded, but evidently *C. niveum* had been used in its production. The colour of the flower was white and densely covered with tiny purplish markings (A First-class Certificate was awarded). From the same collection came a plant of *Lycaste Skinneri alba*, showing evidence of good culture, and bearing fine flowers. As in Mr. Leemann's case, no award was made.

Mr. O. O. WHOLEY exhibited *C. insigne* var. *exquisitum*, for which he obtained an Award of Merit; the marking of the dorsal sepal was distinct, the spots being peculiarly placed, and, what is seldom seen, violet markings were apparent around the white margin of the dorsal sepal. *C. Argus* from the same collection received an Award of Merit.

Mr. D. LLOYD received an Award of Merit for *C. Lathamianum giganteum*, but which was not particularly gigantic. Mr. H. GREENWOOD exhibited *Dendrobium × "Harold"* (Findlayana × *Linhawiana*), only one flowering being open on the plant; it is a pretty hybrid, and when seen in a more advanced stage should be very attractive. Mr. FRED HARDY exhibited the *C. insigne* Sandwae about which there has been such a great deal said. It is a fine form, and quite equal to anything else bearing the same name. Mr. JOHN ROUSON obtained an Award of Merit for the reverse cross of *C. × Pollettianum*, which does not differ greatly from the original; and a Cultural Certificate for a large well-flowered piece of *C. Bonallii* P. H.

SHIRLEY AND SURROUNDING DISTRICTS GARDENERS' AND AMATEURS' MUTUAL IMPROVEMENT ASSOCIATION.

JANUARY 15.—A meeting of the above society was held at the Parish Room, Shirley, Southampton, on the above date. The president, W. F. G. Spranger, presiding over a fair attendance of members.

The Lecture "Fungi, their mode of life and reproduction," was given by Mr. E. T. Mollor, B.Sc. London, Lecturer in Biology at the Hartley College. A large number of lantern slides were used to illustrate the subject, and added much to the value of the lecture. The method of reproduction was very fully illustrated, and the immense numbers each plant was capable of producing shows how necessary it is to know how to deal with them to stop their ravages.

A hearty vote of thanks to the lecturer and to the president closed the business of the meeting. The subject of Fungi will be continued next meeting, and "Injurious and Beneficial Fungi" is the title of the lecture.

ISLE OF WIGHT CHRYSANTHEMUM.

JANUARY 15.—The annual meeting of this Society was held at Newport on the above date, Dr. GROVES in the chair. The report and balance-sheet were adopted on the motion of the chairman. The balance in hand is over £18, which is about £4 less than last year. Previous to the election of officers a long discussion took place on the desirability of forming an Isle of Wight Championship Prize, which was afterwards entrusted to a sub-committee to discuss and report to the Society. Sir Charles Seely was re-elected President, Dr. Groves, B.A., J.P., chairman, and Mr. C. H. Cayo, Hon. Secretary.



[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.					10ths Inch.	Ins.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 2, 1898.
	Above (+) or below (−) the Mean for the week ending January 15.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since January 2, 1898.	Below 42° difference from Mean since January 2, 1898.				
0	6 +	23	8	+ 17	− 44	0 aver	12	2.5	13
1	6 +	24	13	+ 19	− 46	6	7	0.6	6
2	5 +	21	12	+ 18	− 58	4	5	0.7	6
3	3 +	7	26	+ 9	− 51	4	6	0.7	8
4	3 +	8	27	+ 14	− 55	5	5	0.6	10
5	3 +	16	11	+ 23	− 62	6	4	0.4	8
6	6 +	24	2	+ 25	− 50	8	11	2.0	6
7	4 +	19	9	+ 26	− 55	5	9	2.0	7
8	3 +	22	8	+ 25	− 42	9	7	1.2	21
9	6 +	23	4	+ 21	− 41	6	9	1.3	12
10	4 +	30	2	+ 23	− 40	9	7	1.8	22
*	1 +	26	4	+ 28	− 20	7	7	0.6	34

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending January 15, is furnished from the Meteorological Office:—

"The weather during this period differed considerably in the various parts of the kingdom. In all the eastern and southern districts it was very dry, but gloomy, and frequently foggy or misty; in most of the western districts it was very fair generally, although slight falls of rain were occasionally experienced; in the extreme north-west it was rainy and unsettled.

"The temperature was above the mean, the excess ranging from 1° in the Channel Islands, to 3° over eastern, central, southern, and south-western England, and to as much as 6° in 'Ireland, N.' and over Scotland. The highest of the maxima occurred during the middle of the week, and ranged from 56° in 'Scotland, E.' to 50° in 'England, E.' The lowest of the minima were registered, as a whole, during the earlier half of the period, and ranged from 25° in 'England, S.W.' and 27° in 'England, E.' to 32° in 'Scotland, N. and W.' and the 'Channel Islands.'

"The rainfall just equalled the mean in 'Scotland, N.' but was much less elsewhere. In all the eastern and central parts of Great Britain the fall was scarcely appreciable.

"The bright sunshine was deficient in most parts of the kingdom, but exceeded the mean in some of the western districts, as well as in 'Scotland, N.' on the one hand, and the 'Channel Islands' on the other. The percentage of the possible duration ranged from 34 in the 'Channel Islands,' and from 22 in 'Ireland, S.' to 7 in 'England, N.W.' 6 in 'Scotland, E. and W.' and 4 in 'England, N.E.' The amount recorded at Jersey on Thursday was as large as 7.7, which is equal to 90 per cent. of the possible duration for that day, and that for the same day at Scilly was not much less."

ENQUIRY.

"He that questioneth much shall learn much."—BACON.

BRONZE OR METAL STATUES. Will any reader kindly furnish A. G. with the names and addresses of makers of bronze or other metal statues suitable for flower garden decoration?

NOTICES TO CORRESPONDENTS.

BOOKS: *E. B. S.* London gardening has no special features, and we know of no book dealing with it. There is a little work published at the Garden office, Southampton Street, entitled *The London Market Gardens: Flowers, Fruits, and Vegetables, as Grown for Market*, by C. H. Shaw.

CARNATIONS: *Malmaison*. Probably, eel-worms in the leaves; but we have not examined them with the microscope. We advise you to burn all the affected plants.

CARNIVOROUS AND HERBIVOROUS SLUGS AND SNAILS: Our correspondent, Mr. M. Webb, desires to supplement our remarks in our last issue with the information, that he received the micro-photographs, from which the figures were prepared, from Mr. F. Taylor, 38, Landseer Street, Oldham. For *Auloporna* read *Aulopoma*.

CELERY: *J. A. P.* The seed having been sown in March, no plant under proper conditions of cultivation would have "bolted." It had, as you suggested, suffered frequently from lack of moisture at the root, hence the crooked and small heads. Earthing-up was performed at, probably, an early part of the autumn; and Celery that has been blanched for so long a period of time is very liable to decay. Covering the heart-leaves in the act of moulding-up is a more rapid way of setting-up decay.

CHRYSANTHEMUM-RUST: *W. W.* There are various methods of dealing with this, but we think your employer is wise in recommending you to burn all the affected plants.

CLIMBING FERN: *W. H. Tillet*. The plant is probably *Lygodium scandens*. Can you send a frond for identification?

CROWN AND TERMINAL BUDS IN CHRYSANTHEMUMS: *Wilhelm Müller*. Your supposition is quite justified; the figure marked 49 should have been 59.

GARDENING PERIODICALS: *La Semaine Hortico'e*, published by M. L. Linden, in Brussels, is to be preferred to the one suggested.

GLASSHOUSE HEATING: *J. A.* Steam-heating is not injurious to plants, if no more be employed than will raise the temperature to the desired degree of warmth. The drying effects which the superheated pipes have upon the air is readily obviated by damping the floors more or less. You might supplement the hot-water pipes by running a flow and return steam-pipe alongside of them, not through them. Care should be taken to employ either malleable iron tubing, or very strong cast-iron pipes with flange joints, well packed with vulcanised rubber, and run in with hot lead. One expansion piece of accurately-turned and polished pipe should be inserted in some part of the system, or in the case of cast-iron pipes, a rupture might occur.

GRAFTING VINES: *Vine*. You might place Foster's Seedling, or even Black Hamburgh, on Mrs. Pearson Vine and Alnwick Seedling, or Black Alicante on the White Tokay Vine. You may graft by approach, using the old wood, or young green wood on green shoots.

MARQUERITES: *G. F.* If by "maggots," the leaf-mining grubs are intended to be understood, there is no remedy that equals pinching them with the thumb-nail when observed. The plants should be closely watched so that the grubs do not spoil a lot of the leaves before they are killed. Sprinkling with quassia-water deters the fly from laying its eggs on the leaves.

MICROSCOPE: *H. H.* We do not know your qualifications. If you have not already had some instruction in the use of the microscope, or are not likely to obtain it, then it would be unwise to spend much money on an instrument you could not use. Your teacher would be able to advise you; meanwhile, any good optician in Edinburgh would furnish you with a student's microscope for £5 or £6. Less expensive instruments are of no use.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—*H. T. W.* 1, *Acacia Riceana*; 2, *A. dealbata*; 3, *Sequoia sempervirens*.—*Subscriber*. Chlorophyllum Sternbergianum.—*C. P.*, *Arthroth.* 1, *Adiantum excisum*; 2, *Adiantum excisum multifidum*; 3,

Adiantum decorum; 4, *Gravillea* (next week); 5, *Cymbidium sinense*; 6, *Selaginella Mertensii*.—*J. R.* The plant is *Tainia latifolia*; the flowers of *Odontoglossum* are synanthic, united together.—*J. C., Chesters*. *Dendrobium Dalhousieanum* flowering at an unusual time, and lighter in colour in consequence.—*Nosey*. *Solanum capsicastrum* of the variety which bears oval ascending berries, by the appearance of the damaged specimen received.—*W. T., Cardiff*. So far as we can judge without seeing flowers, your plant is *Jasminum humile*, figured in *Bot. Reg.*, t. 350.—*J. C.* *Epidendrum ciliare*.—*J. T. L., Belfast*. The single flower is *Epidendrum cochleatum*; the small spray, *Cata-setum barbatum*.—*H. J. R.* We thank you for the letter containing remarks about *Staurospis*, and for promise of photographs of the two in question. The *Cypripedium* you send is certainly *C. prestans*. The hybrid much resembles *C. × Harrisonianum roseum*, a variety obtained by crossing *C. barbatum* Warneri with *C. villosum*.—*C. B.* 1, *Adiantum capillus-veneris*; 2, cannot be determined without seeing a mature fertile frond; 3, *Cyrtomium Fortunei*; 4, *Veronica Andersoni variegata*. The other is *Juniperus sinensis*.

ORCHIDS, TIME OF FLOWERING: *Veritas*. *Epidendrum Godseffianum*, early summer; *Oncidium Gravesianum*, summer; *Zygopetalum Mackayi*, during the winter; *Laelia glauca* (*Brassavola*), February and March; *Vanda* (*Esmeralda*) *Sanderiana*, September and October; *Laelia majalis*, spring months; *Oncidium unguiculatum* is autumn-flowering. These plants may flower at other times, according to the treatment afforded.

RABBITS BARKING LARCH: *E. M.* We should certainly use the same composition as a safeguard, as was recommended in our issue for January 8 last for fruit trees.

SITUATIONS VACANT, &c.: *G. B.* We must adhere to our rule not to insert articles from unknown correspondents when sent under initials only. Kindly send full name and address, not necessarily for publication, but to establish your *bona fides*.

STOVE CONTAINING CROTONS, DRACENAS, EUCHARIS, CALADIUMS, AND USED ALSO FOR FORCING LILY-OF-THE-VALLEY, &c.: *W. E. L.* The temperatures given are too high in the winter months by 5° for the stove plants, although they might answer for forcing Tulips, Lily-of-the-Valley, Azaleas, and other subjects desired in bloom out of season. A temperature of 60°–65° at night, the lower reading in very cold or windy weather; and 70°–75° by day, the higher degree of warmth when the sun shines, would be more suitable for these and most other subjects used in conservatories. Lily-of-the-Valley will stand 85°–90° till the flower-stems are 2 to 3 inches high, when the crowns and clumps should be taken from the darkness in which they have been grown, and gradually inured to the light, and to a warmth of 70°, and eventually to 60°–55° or less when the bells are fully open.

VINES AND HOT-WATER-PIPES: *A. P.* No injury will be done to either.

WATER (SHOWER?) BOUQUET: *W. P.* We know of no work in the English language which affords instructions in bouquet-making, nor of any illustrations of a shower-bouquet, excepting ones found in our columns, p. 339, September 21, 1895.

COMMUNICATIONS RECEIVED.—*Edm. Rodrigues*.—*M. de V.*, Paris. —*R. G.*—*H. H.*—*W. B.*—*A. G.*—*M. F.*—*J. R. J.*—*G. R.*, Ghent. —*W. T.*—*H. W.*—*E. A.*—*W. W.*—*J. R.*—*Stephen Jones*. —*R. N.*—*J. P.*—*W. K.*—*J. Chesia*. —*W. B. H.*—*J. D.*—*H. H. R.*—*R. D.*—*W. M.*—*W. S.*—*J. K.*—*D. R. W.*—*E. C.*—*J. Cocker* & Sons.

PHOTOGRAPHS, SPECIMENS, ETC., RECEIVED.—*D. Gauthé*, with thanks.—*J. Medley Wood*, Natal, with thanks.

DIED.—On the 16th inst., at Tottenham, GEORGE BECKWITH, of the Tottenham Nurseries, aged 77.

CONTINUED LARGE INCREASE in the CIRCULATION of the "GARDENERS' CHRONICLE."

Important to Advertisers.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED, and that it continues to increase weekly. Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.

(For Markets see p. xii.)



THE

Gardeners' Chronicle.

SATURDAY, JANUARY 29, 1898.

HIMALAYAN RHODODENDRONS.*

HIMALAYAN Rhododendron culture in Great Britain may be said to have had birth concurrently with the publication of Sir J. D. Hooker's *Journals*. Until this intrepid explorer returned from his memorable travels in Sikkim, Rhododendrons were the exception rather than the rule in our conservatories, and few persons seemed to have thought that this beautiful class of plant was adapted to outdoor work.

The peculiar climatic advantages which the south-western counties offered for the cultivation of a tender vegetation were either not understood in those days, or, if understood, did not inspire sufficient confidence to induce horticulturists to introduce into their grounds many subjects which are now almost universally cultivated. Only within recent years has the barest justice been done to the favoured conditions under which gardening can be carried out; and it must be confessed that, in spite of what has been done during the past quarter of a century, much has yet to be accomplished before we can claim to be fully in league with Nature, or to have appropriated a tithe of the opportunities which our insular position and climate offer.

To say that the introduction of many of the tenderer forms of Rhododendrons instituted a new era in outdoor operations, is to assert what every student of the subject knows to be a fact. After a few of these noble plants had passed through half-a-dozen of our winters with but little or no injury, the scales fell from the eyes of the profession, and in an amazingly short time not only were most parks and gardens stocked with Rhododendrons, but the startling manner in which they evidenced the mildness of our winters led our gentry to carry the experiment to still more astonishing issues. Side by side now with the forests of Rhododendrons which are grown on many a south country estate, may be seen a sub-tropical flora embracing such children of a sunnier clime, as *Cobea scandens*, *Daturas*, *Lapagerias*, *Cassias*, *Nicotianas*, the Citron, the Orange, the Banana, and a host of others which the gardeners of fifty years ago regarded as the aristocracy of the glasshouses.

To be frank, it must be confessed that it is only in the southern counties of England and Wales that such sub-tropical work can be carried on with anything like satisfaction, and that Rhododendrons find those requisites of

soil and climate which are so essential to their healthy growth. Nor is this surprising, when it is known that meteorological observations go to prove that the two westernmost counties have a climate in many respects superior to that enjoyed by the Riviera, and that plants which have been known to be killed off in severe winters in South France, pass through our own almost unscathed. In developing Falmouth as a winter resort, much importance has been attached to meteorological statistics. While admitting their value, it does seem to the writer that the evidence of the vegetation should carry a greater weight. Shy as the public ever are of figures, they cannot get away from the testimony of the flora; and of Nature's several ways of showing the geniality and equality of a climate, this is, by all the difference, the most reliable. To walk through some of our Cornish gardens from January to April, when our sweeps of Rhododendrons are tricked off in the most gorgeous of colours, is, for the time, to forget that one is in a small country where scarcely a winter passes without from 12° to 20° of frost being registered in some of the northern counties. Anything more beautiful than such collections of Rhododendrons as can be seen at Tremough, Tregothnan, Scorrier, Carelew, and Killiow, in Cornwall, can scarcely be conceived. Whether regarded from the standpoint of landscape gardening, valued for the length of their blooming season, or considered for the beauty of form and variety of colour of the individual flowers, we are obliged to confess, after a close acquaintance with these plants in Cornwall and South Wales, that they more than repay the time and money lavished upon them. The pity of it is, that in many places which might be named as admirably suitable for their cultivation they are relegated to a very subordinate position.

It is often urged as an objection against the culture of Himalayan Rhododendrons, that the earlier blooms are liable to be destroyed by the sharp frosts which are all too prevalent during the early spring. While granting the risk, it does seem like bolstering up a case with sham evidence to exclude the Rhododendron on such a pretext. If a few blooms are destroyed by frost, surely the display which follows later is a sufficient recompense for the labour; while the fact that, even in the severest weather, our Rhododendron walks are rarely without bloom from the middle of January onwards, is an ample set-off against the few buds that fall victims to the frost.

As far as Devon, Cornwall, and South Wales are concerned, it is, I think, quite probable that, in addition to the mildness of the climate, the humidity of the atmosphere greatly favours the Rhododendron. To the majority of them an over-dry atmosphere seems almost as fatal as a parched soil. This observation, which has been growing on me for years, finds plenty of evidence in its support in Sir J. D. Hooker's Himalayan journals.

Experience has taught me the wisdom of selecting a site fairly elevated but sheltered from high and cutting winds. In any case, low-lying and damp situations must be sedulously avoided, as they invariably spell ruin to the early flowers by their susceptibility to frosts. Northern aspects, where they enjoy a minimum of sunshine, and the shelter of a wall with a north exposure, have given us good results at Tremough.

While it is somewhat of a fallacy to say Rhododendrons will only flourish in a peaty soil, the fact remains, as anyone who has had

much to do with them can aver, that they are great lovers of peat in some form or other. If this is liberally administered to the soil when planting, the plants make a vigorous start at once. Granite sand in the proportion of one-third may be added to the peat with beneficial results. What they do not like is a limey or chalky soil, or a stiff water-logged clay. In our well-drained, gravelly loam at Tremough they root freely and luxuriantly, but I have known them grow almost as well on a properly-drained clay bottom. Being surface-rooting plants, it is obvious they will not stand prolonged droughts, so that in a very dry season the hose must be freely used in the shrubbery. Equally important is it to prevent the accumulation of superfluous and stagnant water around the roots. By way of protection against drought, the natural habit of Rhododendrons must be encouraged. Their lowest branches have a predilection for bending down so as to cover the roots; and if these branches be carefully preserved, and are encouraged, by the shade they offer, they will keep the soil around the roots comparatively moist in the driest season. Plants which fall the easiest victims to a dry summer are almost invariably those which have lost their lowermost branches, and whose roots are exposed to the full play of the sun.

PROPAGATION.

When we come to propagation, we touch a much-discussed problem, and here, again, I shall only speak from experience. While budding may commend itself to some, grafting to others, and layering to a third class, the raising of plants from seed, although confessedly a work requiring patience, has always been my own favourite method. In addition to the general interest connected with this process of stocking the garden, species raised from seed have the twofold advantage of being true to their kind, and of possessing robust constitution. Tremough may be cited in evidence thereof, the majority of the older plants there being raised from seed sent to my late employer, William Shilson, Esq., by Sir William Hooker. Of course, hard-and-fast lines cannot be laid down. Oftentimes one has to comply with temporary exigencies, when, if he is an advocate of raising seedlings, he will be obliged to have recourse to budding, grafting, or layering, and *vice versa*.

PLANTING.

The mode of planting-out which I have followed for nearly thirty years is to place the shrubs in specially-prepared pits, and to surround the ball of roots with a lining of peat and sand, to which I frequently add one-third of decayed leaf-mould. A surface-dressing is given as occasion may require. A good mulch of decaying leaves—Nature's own method of manuring—is a wonderful help to keeping the roots cool, but in kept beds and borders this cannot at all times be carried out, because of the untidy appearance it gives. In such cases, peat or fully-decayed leaves must be resorted to as a surface-dressing. In a paper read before the Royal Horticultural Society on June 6, 1893, Sir John T. D. Llewelyn, Bart., stated that a good top-dressing was to be found "in the dead last season's bracken Fern, which, if dry and well forked in, will be found very beneficial to the roots, and the stiffer the soil the more advantageous will it be, for it acts mechanically, as it were. Each stick or stem of Fern is a little hollow pipe forming a miniature subterranean tunnel, in which the delicate,

* A paper read at the Devon and Exeter Gardeners' Association, Jan. 12, by Richard Gill, Tremough, Penryn, Cornwall.

Rhododendron rootlets can travel, and which afterwards, rotting down, affords nutriment to the growing root." Sir John may be correct when speaking for stiff soils, but, while admitting certain manurial virtues in the bracken, I should be driven to direct extremities before using it on ordinary free soils, fearing the results of this increased porosity in a dry season. In the application of top-dressing and in cleaning operations, the hoe and spade must be used with extreme caution. The best roots of the Rhododendron are near the surface, and to injure these is to damage the plant, in some cases irretrievably.

(To be continued.)

CRASSULA COLUMNARIS.

This is one of four species of *Crassula* which comprise the section *Pyramidella*. Plants of it were first sent to Kew in 1885 by Mr. C. J. Dunn, of Claremont, Cape Town, the discoverer of *Streptocarpus Dunnii*. The photograph, of which an enlarged reproduction is given (fig. 23), was sent to Kew by Mr. A. J. Fuller, of Cape Town, who writes that the plant came from Matjesfontein, in the Karroo District. The entire plant does not exceed 3 inches in height. The stem is erect, and the fleshy orbicular obtuse imbricating leaves give it a quaint appearance, the whole plant resembling one of the *Balanophore*. The flowers are borne in dense capitate cymes, and are pure white.

Another closely-allied species is *C. pyramidalis*, a figure of which was published in the *Gardeners' Chronicle* in 1885, when there were plants of it in flower in the Cape-house at Kew, also received from Mr. Dunn. This species has closely imbricating leaves arranged in a four-angled prism of nearly equal diameter throughout. The longest stems are about 9 inches, but usually they do not exceed half that length. The flowers, which are dull orange-red, are borne in terminal heads, and on strong stems; they are also produced laterally. These two species deserve a place in collections of quaintly-attractive succulent plants. They require greenhouse treatment.

METHODS OF PROPAGATION.

(Continued from p. 427, vol. xxii.)

BERRY-BEARING PLANTS.—The *Aucuba*, *Cornus* (Dogwood), *Cotoneaster*, *Pyracantha*, the *Date-Plum* (*Diospyros*), the *Privet*, and the handsome-leaved *Filaria*, are all raised from seed, either rubbed clean, pitted, or directly from the shrub when dead-ripe, or gathered and stored till the early spring, and then sown in boxes or pans, or even in beds in a cold pit, kept uniformly moist, the lights being closed at night, but open during the day. When the seedlings are large enough to handle, they may be either potted singly in small 60's, or five to ten in a 48, grown-on one season in shelter, and then lined up in the nursery beds.

The *Laurel Tribe*, being all *Cherriea*, should have the pulp and skin cleared off the stones, or if time is no object, they may be pitted, and sown when the enveloping Cherry has decayed and left the stone clean. It must not be forgotten, however, that the finer varieties, as *Bertini*, *rotundifolia*, *caucasica*, &c., and some other broad-leaved hybrid forms, cannot be depended on to reproduce themselves true from seed, especially when the berries have been collected from a mixed shrubbery, as being hybrids, their tendency is to revert to the original type, therefore it is safer to layer or raise these from cuttings. This same caution also applies to the useful *Aucuba*, the varieties of which now number more than twenty distinct and useful sorts.

Leguminous plants, among which we find some very handsome shrubs, are easily increased by their small bean-like seeds, gathered just as ripe, and sown in the open border, or if in only small quantity, in boxes, pans, or pots. Many of these, however, have a trick of suddenly bursting their pods, and scatter-

ing the seed widely. Who has not stood on a Gorse-covered common on a still warm day in autumn, and heard the pods of the useful covert shrub bursting on all sides like the crack of fairy-rifles? The *Brooms*, *Gorse*, *Carragana*, *Amorpha*, *Bladder-senna* (*Colutea*) and other well-known *Pea-flowering* shrubs, are propagated from their seeds sown in boxes, pits, or the open border; these, like all the genus, quickly germinate, and being pricked out in the borders, soon make useful plants, but in all cases the tap-root should be taken out, leaving only the fibrous lateral rootlets, which renders the final transplanting both easy and safe.

Shrub seeds are catalogued and sold by most seedsmen, but it must be admitted that the sale, being limited and uncertain, fresh seed is rarely obtainable, and this mars success; therefore save your own, and sow as fresh as you can manage. This caution applies more cogently to the next class of subjects, namely, the beautiful *Heath* tribe (*Ericæ*), em-

The *Buddleas* can both be raised from seed in the same way, as also the *Carolina Allspice* (*Calycanthus*), the fragrant *Chimonanthus*, the *European Celtis*, and all the elegant-leaved *Sumachs* (*Rhus*).

The *Japanese Quinces* (*Cydouia*) are best increased by allowing the fruit to decay, and then taking out the pips and sowing them in pans, allowing the plant to grow from 6 to 9 inches high, and then cutting off the tap-root, potting singly, or quartering out in the nursery.

There are many more evergreen shrubs I have not specially mentioned, but all of them may be treated in one or the other ways I have endeavoured to indicate.

One final caution: never allow the soil covering any of these shrub-seeds to get dry, or just as the little radicle and plumule begin to push, they will perish, and your labour will be all in vain. *Experience*.

(To be continued.)

DO ORCHIDS DEGENERATE?

(Continued from p. 49.)

THE province of Malabar being well within the influence of the south-west monsoon, the rainfall, in consequence is very heavy, and the seasons are very distinctively marked. From March till June a few showers fall; about the 15th of the latter month the monsoon begins, continuing till about the 15th of September, and from the latter date till March comes round again the sky is clear and cloudless. In addition to the burning sun, a withering east wind prevails during the day from December to March, scorching all vegetation on the grassy hills and in the deciduous forests, which culminates in their being swept by fires before the advent of the first spring shower. The middle, or deciduous Orchid zone, being fully exposed to these trying climatic conditions, the *Dendrobiums* are seen hanging from the leafless trees on the hill-sides like dead things, and to the uninitiated it requires some exercise of imagination to believe that any effort of Nature could ever coax them into life again. The upper and lower, or evergreen Orchid zones, are no better off in the way of rainfall than the middle zone; but a wonderful compensating power prevails in Nature in the shape of heavy nightly mists or fogs during the hot months, yielding the necessary moisture, which is doubtless the cause of these plants choosing this zone as their natural home, where they can have the required amount of rest without any "drying off." It is curious to see in the same district *Saccolabium guttatum* clinging to the branch of an evergreen tree with leaves succulent and fresh, and then view the contrast at a very little distance and higher elevation of the pseudo-bulbs of the *Dendrobium album* withered and dangling in the hot east wind with relaxing root-hold, and in seeming danger of tumbling to the ground.

The fog, or watery vapour alluded to above, which is so much in evidence during the dry months of the year in the upper and lower belts, is a very beautiful sight when seen at day-break morning after morning from an elevated point clear of its influence. The country from the foot of the Western Ghats, extending to the Neigherry mountains and across the Mysore frontier as far as the eye can reach, is covered with a mantle of fleecy clouds of the purest white, with the dark Bamboo-crowned tops of numerous cone-shaped little hills or elevations, peering out like so many fairy islands in a fairy sea. It is a sight, once seen, never to be forgotten. Underneath this fleecy pall flourish the evergreen Orchids, nightly receiving throughout the hot season at Nature's hands that gentle spray which speaks of showers to come, and



FIG. 23.—*CRASSULA COLUMNARIS* (SOUTH AFRICA).
(Above Natural Size.)

bracing the *Azalea*, *Rhododendron*, *Kalmia*, *Menziesia*, as well as the *Heaths* proper.

These are best raised in pans or boxes, with just enough crocks at the bottom to ensure proper drainage, covered first with a layer of fibrous peat, and filled up within an inch of the top with a fine sifted mixture of peat, loam, and sand. This should be pressed firmly down and well watered, then sow your seed evenly over the surface, covering over with fine sand, and cover over with a small square of glass, resting on the rim of the pan or box. Allow plenty of time for the seed to germinate, keeping a sharp look-out for any intrusion of insects, or what is more insidious, mossy or fungoid growths. Prick off the seedlings when they have made three leaves or more.

The brilliant *Azalea mollis* is an easy plant to increase thus, and gives us extraordinary variation in colour from seed, the *Rhododendron* in all its handsome varieties the same, but the other members of the genus are more constant from seed.

which refreshes them without disturbing their rest, which, in fact, supplies the necessary moisture they require to prevent a "drying-off." These fogs are wonderfully defined. They hang along the base of the middle-zone in a beautifully distinct line, leaving the middle-belt clear; whilst higher up may be seen clouds of the same fleecy nature rolling up the ravines and gorges of the mountains, and disappearing gradually as the sun gains power.

Now, supposing for a moment that a col-

lector entering such a district similar to that I have been attempting to describe, and forwarding to England a consignment of Orchids gathered indiscriminately, with a statement in general terms that the plants were procured from a certain district possessing a certain climate characterised by so many months of dry weather and the other months of the year showery and wet, with no other information whatever regarding the less noticeable climatic peculiarities, which probably are as numerous and various all over the world as the districts from which Orchids, are drawn. In such a case the probabilities are

that the recipient of such a consignment, in the absence of information of such vital importance, would make cultural mistakes resulting, perhaps, in the death of a large percentage of the plants. It would seem therefore, that a great responsibility rests with the collectors, and it might be well for the future of Orchid culture in England, and contribute to the checking of that deplorable annual mortality which undoubtedly takes place among imported Orchids, were employers to insist upon collectors

THE DEGENERATION OR DEATH OF ORCHIDS.

HAVING of late been consulting old records in reference to hybrid Orchids, it occurred to me that many names seemed to be now only names, the plants that bore them have gone; at any rate we rarely if ever hear of many whose names I append. I have therefore made a list of some that are not seen either in the notices in the horticultural Press, neither do we see them at the Royal Horticultural Society. It may be that many are yet alive in quiet collections where Orchids are grown like other plants, because they have beautiful blooms that are used as cut-flowers only. If this communication does unearth some of them it will have attained its end. *Cattleya Aclandi* × *Loddigesii*, *C.* × *Brabantia*, *C.* × *Dominyana* alba, *C.* × *D. lutea*, *C.* × *hybrida* (*C. guttata* × *C. Loddigesii*), *C.* × *picta* (*C. guttata* × *C. intermedia*), *C.* × *picturata* (*C. guttata* × *C. intermedia*), *C.* × *flaveola* (*C. guttata* × *C. intermedia*), *C. labiata leucophæa*, *C. Mendeli* *Lendyana*, *C. Mossiæ* *Maiana*, *C. M. McMorlandi*, *C. labiata* *Pitcheri*, *C. Trianaei* *Cleopatra*, *C. T. Io*, *C. T. Juno*, *C. T. Venus*, *C. T. splendidissima*, *C. Lindeni*, *C.* × *Lowryana*, *C.* × *Manglesii*, *C.* × *Mitcheli*, *C.* × *quinquecolor*, *Lælia albida* *Stobartiana*, *L. a. sulphurea*, *L. anceps* *Percivalliana*, *L. a. Calvertiana*, *L. a. obscura*, *L. a. leucosticta*, *L. a. radiana*, *L. a. Leeana*, *L. a. Veitchiana*, *L. a. holochila*, *L. flammea*, *L. purpuracea*, *L. purpurata nobilis*, *L.* × *Pilcheriana*, *L.* × *Pilcheriana* alba, *L.* × *Sedeni*, *Lælio-Cattleya* × *Devoniensis*, *Odontoglossum aureo-purpureum*, *O. crispum* *apiculatum*, *O. c. aureum*, *O. c. a. magnificum*, *O. c. Bowmanianum*, *O. c. pendulum*, *O. c. Perrini*, *O. c. Mrs. C. Dorman*, *O. c. Regina*, *O. c. Rothschildianum*, *O. blepharicanthum*, *O. cinnamomeum*, *O. Dennisoniæ*, *O. eugenes*, *O. flavescens*, *O. hystrix* *Denisoniæ*, *O. intermedium*, *O. Lowryanum*, *O. macrospilum*, *O. luteo-purpureum* *illustre*, *O. mulus* *Bockett's* var., *O. maculosum* *superbum*, *O. Pescatorei* *Jackson's* var., *O. P. melanocentrum*, *O. P. Mrs. G. W. Palmer*, *O. P. Tilgate* var., *O. Rossii* *F. L. Ames*, *O. Scottii*, *O. triumphans* *Marshallii*, *O. t. nigrescens*, *O. t. Wilsonii*, *O. Roeblingianum*, *O. Wilckeanum* *Cooksonianum*, *O. Wendlandianum*, *O. rigidum*, *O. retusum*.

I have only taken three genera, and were the list amplified by specialists in *Cypripedium*, *Dendrobium*, and other genera, it would be far larger. In addition to these, there were a great many plants named by Reichenbach that one never hears of now. Where are they? All these originals had their day and made their stir, each at its time, now the majority are but a name.

Does such a list suggest the broad fact that Orchids passed from hand to hand die owing to various cultivators treating them in different ways, going from place to place, and having to exist under vastly different conditions? Plants grown for many years in one place and always cultivated by the same hands can be found all over the country, in some cases going back for twenty-six years. *de B. Crawshaw.*

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Peaches and Nectarines.—The pruning of these fruits, now that the buds are swelling, should be commenced, for if the weather continues mild, the trees will soon be in flower. The fruit being borne on wood of last season's growth, the fan-system of training is the best, much of the growth not required for extension being removed before it has got large enough for extensive wounds being caused by its removal, which rarely heal. The young shoots should always start from the upper side of the old branches, it is then an easy matter to fill up gaps when these occur, as the other branches can be pulled downwards, and shoots encouraged in the centre. This arrangement depends very much on the sort of summer-pruning pursued; but if the young shoots have been laid-in on the under-side of the branches these shoots should be removed where they can be spared, and thus, in two or three seasons, the faulty system of laying-in on the under or both sides can be

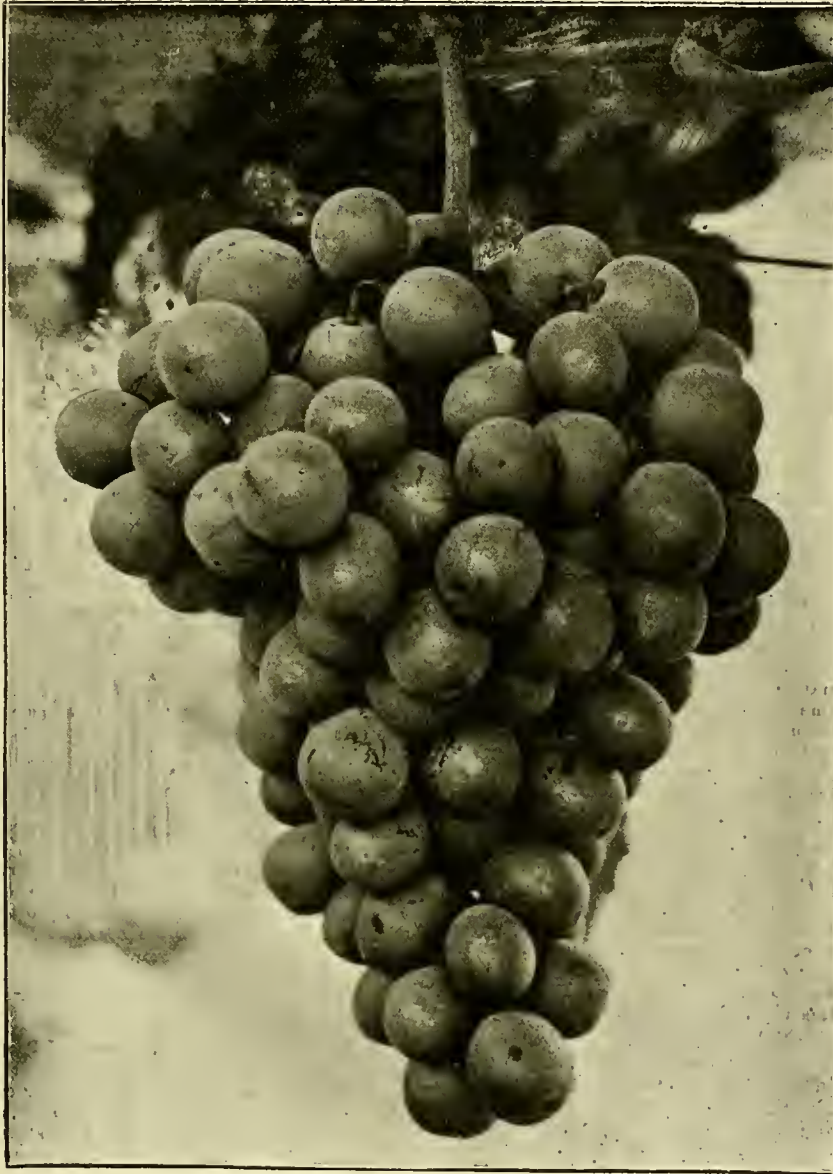


FIG. 24.—A BUNCH OF COOPER'S BLACK GRAPES, GRAFTED ON GROS COLMAN, (SEE P. 71.)

lector entering such a district similar to that I have been attempting to describe, and forwarding to England a consignment of Orchids gathered indiscriminately, with a statement in general terms that the plants were procured from a certain district possessing a certain climate characterised by so many months of dry weather and the other months of the year showery and wet, with no other information whatever regarding the less noticeable climatic peculiarities, which probably are as numerous and various all over the world as the districts from which Orchids, are drawn. In such a case the probabilities are

sending with each consignment the fullest particulars regarding the climatic conditions under which the plants were found growing in a state of nature. Collectors are men of undoubted intelligence, so that there would be no difficulty in the way of their affording such information.

That cultural mistakes are made at the present day even with Orchids and other plants that have been in England for a great number of years, is a fact that should not escape comment. *J. Lourie.*

(To be continued.)

corrected. Any unripe shoots should be shortened back to ripe wood, always letting triple buds terminate the shoots. Well-ripened shoots may be trained in at full length if there is space, especially at the extremities of the branches if further extension is allowable. Bearing wood should be laid-in at not less than 4 inches apart.

Cleaning.—Before the trees are nailed or tied, let them be thoroughly syringed with a solution of soft-soap, at the rate of four ounces to a gallon of rain-water, dissolved in boiling water and diluted to the above strength. Every part of a tree and the surface of the wall must be wetted with the soap-suds and allowed to dry on. If brown scale should exist, let it be removed by means of a thin strip of wood from the older branches, and with a sponge from the tender rind of the young wood, the latter requiring great care, the scale insects being small and not easily seen, and the buds are easily rubbed off. The syringing of the trees with soap-suds may only be carried out during mild weather.

Training.—When nailing or tying, leave space for the younger branches to swell, for most of them will be double their present size by next autumn; and look carefully after the old ties and shreds that they are not so tight as to cut into the rind. Tying is perhaps more dangerous in this way than nails and shreds; moreover, the latter, by securing the trees closer to the wall, enables them to obtain more protection from the wall, and is therefore better suited for gardens in the Midlands and the North.

Protection.—The remarks on the Apricot (p. 55) apply also to the Peach and Nectarine, and need not be repeated here.

The Fruit-room.—Such late varieties of Pears as Beurré Rance, Olivier de Serres, Bergamot d'Esperen, and Ne Plus Meuris, are much improved in quality if placed in a temperature of 55° for a few days before consuming them, putting them in boxes with a little wood-wool or paper shavings beneath and between them. Apples, on the contrary, should be kept as cool as possible this mild weather, being careful to remove every decaying fruit as soon as observed, and to guard against a sudden rise of the temperature, which would cause moisture to be deposited on the fruit, and in that way hasten decay.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorking.

Angræcums and Zygopetalums.—Plants of *Angræcum sesquipedale* that have done blooming should now be repotted or top-dressed, as previously advised for the *Aërides*. *Angræcum chrysanthum*, now in flower, may be similarly treated after the spikes are cut. *A. pellucidum*, now producing its long drooping flower-spikes, that have a tendency to push themselves down into the compost, should be examined daily, it being sometimes necessary to assist the spikes over the surface by placing a piece of tile or crock under them. This plant should always be protected from sunshine, or the foliage quickly changes colour; keep the plant well supplied with water until its flowers have opened. The rare terete-leaved *A. Scottianum*, being of semi-succulent growth, succeeds best when trained to upright rafts or cylinders, the stems tied firmly to the rods, so that the small roots may have something substantial to cling to. Whilst in active growth, the plant should be syringed once or twice daily. *A. Leonis*, now sending up its flower-spikes, should be watered moderately only. Instead of dipping the plant in the usual manner, it is better to use a fine-rose watering-can and to lightly sprinkle the surface of the moss and around the side of the basket occasionally. Plants of *Zygopetalum Mackayi* and its variety *crinitum*, that have recently passed out of flower, may be repotted or top-dressed should they require it. A mixture of fibrous loam, chopped moss, and plenty of broken crocks well mixed together is a suitable compost. Place the plants on the shady side of the warm-house, and take the usual care not to over-water newly-potted plants. *Z. maxillare* extends its creeping rhizome several inches annually, so that it is useless to try to subject it to pot-culture; it grows naturally upon the stems of Tree-Ferns, and it is usually imported so. In the case of plants which have overgrown these stems, a fresh piece of Tree-Fern should be wired on to the original, and the plant will soon take hold of the added portion; this should be attended to at once, as the plant will be starting into growth. Water must be freely given at all times. *Z. maxillare* should be grown in a moist, shady corner of the *Odontoglossum*-house; when grown in a warmer temperature it is generally injured by insect-pests.

Cypripediums.—Any plant of the following, *C. purpuratum*, *C. Schlimii*, *C. Leeanum* ×, *C. Arthuri-anum* ×, *C. venustum*, *C. Mastersianum*, *C. Williamsii* ×, *C. Amesianum* ×, *C. Cressianum* ×, *C. Sallieri-Hyeum* ×, *C. insigne* and its varieties, that have become pot-bound, should be repotted as they pass out of flower. Strong, healthy specimens may be shifted into pots at least two sizes larger than they are in at present. The pots should be one-third filled with drainage, secured by a layer of sphagnum. Lumpy peat and sphagnum-moss in equal parts, and pieces of crock or broken limestone mixed with it, will grow to perfection any of the above varieties. All of them thrive luxuriantly in a shady part of the intermediate-house. When the new roots are in full activity, abundance of water must be afforded. *C. Schlimii* is a plant that does not appreciate strong light, under which its foliage turns to a sickly hue, but a piece of tissue-paper spread over the leaves will protect them from harm. Plants of *C. Boxalli* and *C. villosum* are producing their flower-spikes, which should be guided through the foliage, or they may be distorted through the opposition of the heavy leaves. Both species require the temperature of the intermediate-house.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Bougainvillea glabra and Varieties.—After a period of rest in a cool-house, any which are now shedding their foliage may be somewhat severely pruned back, removing all weak shoots, and very strong ones if these be not required for furnishing the plants. The strong shoots needed for building up the plants should also have the unripened wood removed from them. Keep the plants dry at the roots till they start into growth, taking care the wood does not shrivel from over-dryness of the soil.

Clerodendron Balfourianum.—Plants which have been rested may now be started in a brisk heat, applying slight bottom-heat if possible. If the plants are grown in large pots, it will suffice for several years if the surface-soil be replaced with a rich compost, making it firm. If repotting be necessary, the plants should first be started into growth. Care must be taken of the fibrous roots, and as a potting-soil use fibrous loam two-thirds, leaf-mould and coarse sand one-third, and well-rotted manure one-seventh. The plants should be kept rather on the dry side before and for some time after repotting, syringing them till root-action commences, when a little more water will be required, increasing the quantity as time progresses. Plants at rest must not be placed in a house having a lower temperature than 55°, or they may fail to start.

Plumbago capensis.—These are plants secured to pillars and walls in the conservatory or greenhouse; the annual shoots may be pruned back to two or three buds from the base, and where space can be afforded for extension, a less severe cutting back and shortening of the stronger growths will suffice. Plants growing in pots may be cut back, and then placed in heat to yield cuttings for next year's stock. If the plants are infested with thrips, let them be cleansed with an insecticide before growth begins.

Azalea indica.—The early forced plants of *Deutsche Perle* which have gone out of flower should be placed in an early vinery or Peach-house, and syringed freely to encourage growth. Any that require repotting may have immediate attention. Later flowering plants require to be kept cool, and to be thoroughly syringed when the weather will allow, fumigating the house if thrip be present on the plants. Water must be afforded with great care, and only when it is really wanted; on the other hand, dryness at the root is fatal to these fine hair-rooted plants.

Carnation Miss Joliffe.—If there is a deficiency of this variety, than which few are more useful in the winter, cuttings may be inserted forthwith, taking young growing shoots from plants grown in a cool-house, which must be cut close to a joint with a very sharp knife, and inserted round the side of a small pot to the number of two or three, using sandy soil, affording a thorough application of water, and placing the pots under a hand-light or bell-glass, giving them bottom-heat of 75° to 80°, and top-heat of 65°. Other varieties may be treated in a similar manner. Last autumn layers that were placed in small pots will now be well rooted, and they may be potted into small 60's, and stood in a cool-house or frame, protecting them from frost.

Gardenias.—Those plants which are showing flower-buds should have the shoots which are pushing

out near the base of the flower-bud removed. The plants delight in abundance of heat and moisture, and the syringe should be freely employed till the flower-buds commence to open, when atmospheric moisture should be considerably reduced. If mealy-bug infest the plants, petroleum emulsion or methylated spirits-of-wine should be applied, the latter with a small brush.

Cannas.—Those plants that are required for decorative work and have had a thorough rest may be divided, and the bits placed in pots according to their size, when, if plunged in a fairly brisk bottom-heat, they will soon begin to grow, and in about a month may be removed into cooler quarters. If a good number be cultivated, they should be divided into batches, to form a succession. It is not a safe practice to prolong the drying-off period over three months.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

Leeks.—In order to obtain large well-blanching, and mild flavoured stems, a sowing of *The Lyon*, *Sutton's Prizetaker*, and *Dobbie's Champion*, should now be made in boxes or seed-pans, filled with rich, light soil, scattering the seeds thinly, and covering them with $\frac{1}{2}$ -inch layer of fine soil; and afford a temperature of about 50°. When plants appear, keep the boxes, &c., near the glass till pricked off; meanwhile the boxes for this purpose should be got in readiness by filling them with a compost consisting of equal parts loam, leaf-mould, and spent Mushroom-dung, also adding sharp sand, pressing the compost firmly, and placing the boxes where the soil may get warm. When the plants show two leaves is the time to transplant them at 2 inches apart. Do not admit much air to them before they have begun to grow, and afterwards the same kind of treatment as that advised for the raising of big-bulbed Onions will suit the plant in its early stages.

Winter Spinach.—Let the ground be stirred with the hoe between the rows, choosing a day when the soil is dry for doing the work. Seeds of round or of the prickly-seeded Spinaches may now be sown on a south border, affording the plants protection during frosty and cold weather by means of spare frame lights, dry bracken, or litter. For early sowings the drills may be drawn flat and shallow at 15 inches apart, and the plants singled out to 4 inches from each other, a greater distance being unnecessary with so short-lived a plant.

Parsnips.—A piece of deep, rich land, which should have been trenched in the autumn, and no dressing of manure afforded, may now be got in readiness when the land is in a comparatively dry state. After forking it over a few inches deep, and scuffling it so as to obtain a fine tilth, and raking and levelling it, divide it into beds 5 feet wide, sowing the seed in drills 1 inch deep, and $1\frac{1}{2}$ foot apart for big sorts, and 1 $\frac{1}{4}$ foot for smaller ones. As Parsnips require a long season of growth, the seed should be got into the ground in February. *The Hollow Crown*, *Student*, and *Dobbie's Champion* are the best, the first two for exhibition.

Peas.—The early sowings of Peas and Broad Beans, when the tops are above the ground, should have small live pieces of Spruce Fir or other evergreens stuck into the soil close up to the rows, and traps should be set for mice, which are in some gardens destructive to early Peas and Beans. As a further protective, damp all seeds of Peas and Beans before sowing, and coat them with dry red lead, or scatter Furze-tops passed through a chaff-cutter along the drills before closing them.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

New Borders.—Continuing my remarks on Figs in last week's issue, I now give some brief directions on making indoor borders. If it be the intention to plant Fig-trees in the spring, the border may now be prepared for their reception; and as the Fig is more fruitful in borders of limited size than in large ones, a border 5 feet wide, with 1 ft. of drainage materials, and a depth of soil of $1\frac{1}{2}$ ft., is sufficiently large to enable good size trees to flourish. The bottom should be concreted, making it fall to a point, where a drain may take away the water that percolates through the soil. The front or the back-wall of the house may form one side of the border, and a wall of brickwork or concrete $2\frac{1}{2}$ ft. high the other side built at the edge of the concrete bottom. A suitable

kind of soil for a Fig-border consists of five parts turfy old pasture loam, cut about 4 inches thick, and one of lime rubbish, old plaster, &c., with the fine part sifted out of it. At the bottom, place a layer of brickbats, &c., to form the drainage, and over this place grass sods, the herbage downwards, and above this put the soil, making it firm as the work proceeds, and allow for shrinking in bulk, which will be considerable in a year or two.

Cherries.—It is against the nature of hardy fruits to commence to force them at a high temperature, and none dislike the practice more than Cherries. To have ripe Cherries in May, the forcing of the trees should

Early Vines.—As often as may be required, the young shoots should be gradually brought down by means of broad strips of common bast to the wires. It cannot be done in all cases at one attempt, the shoots being very brittle, but needs to be done in twice or thrice. The shoots should slant slightly upwards, and not be crowded together, so that the leaves have not full space to develop. Each shoot should have the point nipped off at two joints beyond the best bunch, and the secondary shoots or small laterals that spring from the leading buds on these shoots at the first joint. Tendrils should be removed. The fastening of the shoots and the stopping of the

state of the weather, without causing draughts. In the morning, when the warmth in the vinery has reached 70°, let the ventilators be opened a small space, and increase it as the temperature rises. The borders and floor should be damped once on fine days in the afternoon at closing time, and at dusk open the ventilators a trifling space, and so let them remain through the night if there be no likelihood of frost, high wind, or storms.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Pelargoniums as Bedding-plants.—Amidst the changes wrought in the last twenty-five years in the species of plants employed for bedding-out purposes, which were formerly unknown, it is a matter for surprise that the Pelargonium, in its many types and varieties, survived to the present day. A great deal of the gardener's time is occupied in taking the cuttings in the autumn, and much glass of one sort and the other is occupied with the stock of plants and rooted cuttings during the winter and spring months, which could be more advantageously made use of, to say nothing of heating. The result is, that we are provided with plants wherewith to form masses of colour in the flower-garden, whose beauty is often marred for a fortnight or longer by a thunder-storm or a hailstorm in the months of June or July. In moist summers the plants run to leaf chiefly, and the blooms are scarce. Now there are many species of annuals which, raised from seed in the early spring, treated in the manner required by ordinary bedding-plants, without much of the labour and expense incurred in Pelargonium culture during the winter, whose flowers are not spoiled by rain or wind, commence to flower in early summer long before the Pelargoniums, continue right throughout to the end of autumn, and afford great diversity of colour to the flower-garden.

Perennial Lobelias.—The stock plants which have been wintered in frames will now be making growth, and if any increase is required, the young growths may be taken with a few roots and potted in 60's, when, if placed in a temperature of 55°, they will soon become established, and may then be removed to a cold frame, the protection of a mat being sufficient to keep out frost. Water must be carefully afforded, and that, with ventilation in fine weather, will be all the care they require previous to bedding them out. *L. cardinalis* Queen Victoria is a very useful variety, especially for mixing in beds with any light or white-flowering plants; the crimson metallic foliage is very effective when the plants are not in bloom, but there are several others with crimson, carmine, pink, and other tints.

Lobelia compacta.—Where a large number of these plants in variety is used for bedding, and the stock of them is raised from cuttings, the present is a suitable time to begin. Let the cuttings, after denuding them of a few of the lower leaves, be dibbled in thickly in boxes or on a bed of sand in the propagating-pit, affording a top-heat of 65°, and bottom-heat of 80°. The cuttings root readily in silver-sand or cocoa-nut fibre, without any loam, if kept moist with plenty of moisture in the air. The cuttings will be sufficiently rooted for potting-off or boxing in a fortnight. These early plants will, in due course, give plenty of cuttings.

Verbenas.—Where these pretty plants are still employed, and the stock is raised from cuttings, the same treatment as that afforded the Lobelia compacta will suit them. If the foliage is attacked by mildew, dust them with flowers-of-sulphur, delaying the taking of the cuttings for a few days.

Iresines.—The propagation of these may now begin, taking the tips of the shoots as cuttings. If the plants are infested with aphids, fumigate them before the cuttings are taken off.

"GARDEN NOTES FOR THE COLONIES AND ABROAD." (JAMES CARTER & Co., High Holborn.) The second edition of a most valuable little handbook, giving notes of the climatic and other conditions of the principal foreign and colonial stations, and of the seeds and plants most suitable for cultivation therein. We note that the former edition of this work was acquired by one of the colonial governments for distribution; this being an excellent testimony to its usefulness. We recommend it to all proposing emigration to places whose exact soil and climate are unknown to them, and also to more experienced settlers who are doubtful of the success likely to attend cultural experiments with strange or with familiar plants and crops under new conditions.



FIG. 25.—A BUNCH OF GROS MAROC GRAPES. (SEE [P. 71.]

begin gradually, merely keeping a slight warmth in the hot-water-pipes on cold nights and during dull weather, so as to prevent the temperature of the Cherry-house falling below 40° at night, or going above 50° in the day; by sunheat it may however rise to 60°. Continue this treatment till the buds show signs of bursting, then increase the temperature, a degree or two at night and 5° by day, syringing them and affording the treatment recommended in forcing the Peach. Before the blooms begin to open, fumigate the house in order to destroy green or black fly, as one or the other, or both, are sure to be present on the shoots.

Plums.—The treatment of forced Plums is identical with that recommended for Cherries.

same should be in as complete a state as possible before the flowers begin to open; and if red-spider is likely to be present, afford the Vines a thorough syringing with tepid water. To assist the setting of the flowers, let the air be dryish and warm, particularly during the day-time, in order to allow the pollen to become dry by noon, at which hour give each Vine-rod a gentle tap, and in that way distribute the pollen. The temperature may range from 60° to 65° at night, and 70° to 73° on dull days, with a rise of 10° on bright days, and 5° beyond this after the vinery is closed early in the afternoon. By day sufficient warmth should be maintained by means of the apparatus as will allow of air being afforded at the top of the vinery in amount according to the

APPOINTMENTS FOR FEBRUARY.

THURSDAY,	FEB. 3	—Linnean Society.
TUESDAY,	FEB. 8	{ Royal Horticultural Society's Committee.
SATURDAY,	FEB. 12	{ Royal Botanic Society's General Meeting.
THURSDAY,	FEB. 17	—Linnean Society's Meeting.
FRIDAY,	FEB. 18	{ Annual General Meeting of Royal Gardeners' Orphan Fund.
THURSDAY,	FEB. 24	{ Annual Meeting of Kew Guild at 8 P.M.
SATURDAY,	FEB. 26	{ Royal Botanic Society's General Meeting.

SALES FOR THE ENSUING WEEK.

		Lilies, Azaleas, Roses, Greenhouse Ferns, &c., at Protheroe & Morris' Rooms.
		Clearance Sale of Plants, Garden Tools, &c., at The Priory, Wim- bledon Common, by order of R. S. Dean, Esq., by Protheroe & Morris.
TUESDAY,	FEB. 1	Great Clearance Sale of well-grown Fruit Trees, at Lee's Nursery, High Road, Ealing Dean, by order of Messrs. Chas. Lee & Sons, by Protheroe & Morris (three days).
		Japanese Lilies, Continental Plants, Spireas, Gladioli, Roses, Ane- mones, &c., at Protheroe & Morris' Rooms.
		Clearance Sale of Nursery Stock, Carts, Tools, &c., at the St. Martin's Nursery, Canterbury, by order of the Executors of the late Mr. J. Kennet, by Protheroe & Morris (two days).
WEDNESDAY,	FEB. 2	Rose and Fruit Trees, Shrubs, Plants, Palms, Bulbs, &c., at Mr. Stevens' Rooms.
		Miscellaneous Bulbs, Carnations, Lilies of the Valley, Roses, &c., at Protheroe & Morris' Rooms.
THURSDAY,	FEB. 3	Liliums, Border Plants, &c., at Mr. Stevens' Rooms.
FRIDAY,	FEB. 4	Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from
Observations of Forty-three years, at Chiswick.—39° 2'.

ACTUAL TEMPERATURES:

LONDON.—January 26 (6 P.M.): Max., 48°; Min., 44°.
PROVINCES.—January 26 (6 P.M.): Max., 51°, south-
west Ireland; Min., 48°, north-east Scotland.
Weather dull, mild, and foggy.

The annual meeting of this In-
stitution [was in progress as we
went to press last week; never-
theless, we were enabled to lay before our
readers the substance of the report, and the
results of the ballot. Briefly it was stated that
the "Diamond Jubilee" year had proved the
most successful on record. The total number
of pensioners up to the end of last year was 167,
and the amount of money bestowed is, in
round numbers, £3000 yearly; but withal,
there were as many as twenty-nine unsuccess-
ful candidates at the preceding election, and on
the present occasion thirty-four.

Success and practical experience may be held
to justify the existing methods of procedure
with regard to the distribution of votes, the
more so as measures have been lately devised
in the interests of those candidates who do not
happen to have influential friends, and conse-
quently have less opportunity of accumulating
votes than their more fortunate, but probably
not more deserving, competitors.

A legacy left by the late W. J. THOMSON, a
well-known gardener, formerly of Kew, and lately
a nurseryman, was also devised on the same
lines, and came into operation on this occasion
for the first time. Mr. THOMSON, it appears
left a sum of money to be so applied, that the
widow who obtained the highest number of
votes among the *unsuccessful* candidates at any
election shall be admitted to the benefits of the
Society. We could wish now that some legator
would now provide means for the election of
the *lowest* on the list.

The allotment by the committee in certain
cases of a number of votes, and the establish-
ment of the Victorian Era Fund show that the
Committee is alive [to the evils of the present

system, and is desirous to mitigate them as far
as possible.

In favour of the plan now practised, with all
the expense and trouble it entails on the candi-
dates or their friends, and the unfair prefer-
ence shown to non-subscribers, it is alleged
that the subscribers set store upon the privi-
lege of voting, and would think themselves de-
prived of their rights if some other plan were
introduced. Two circumstances tell against
this view, one, that the accidental income, if we
may so call that derived from, or in consequence
of the annual dinner is greater than that derived
from the gardeners for whose benefit the Society
exists! This is a most lamentable and dis-
creditable state of things, and we venture to
say no society can be in a satisfactory state so
long as it exists.

The second indication is shown in the fact
announced by the scrutineers, that more than
1100 votes were spoiled because the voters cared
so little about the matter that they did not
sign their names to the voting papers, or omitted
to comply with some other formality.

We are thankful to say that the invested
sums amount to no less than £30,000, a sum
which the Treasurer spoke of in somewhat
deprecatory terms, as if it were too large; but
so long as there is this disquieting disproportion
between the amount contributed by annual
subscribers—gardeners, and that raised by
other precarious means, so long is a large reserve
fund absolutely necessary to meet contingencies
which may arise, however much we may desire
that they may not do so.

There are considerably more than six thousand
head-gardeners in the British Isles. Let us
suppose that these six thousand contributed ten
shillings each, the amount so obtained would
about pay the amount now annually distributed;
and the donations of the friends of the Society,
and the contributions of younger gardeners
according to their means, would allow of a
considerable reduction in the number of unsuccess-
ful candidates each year.

As we have said, some further arrangements
are needed to secure the most equitable distri-
bution of votes. The Society has staunch friends,
and an able committee imbued with but one
thought—the benefit of the disabled gardener
or his widow. Already they take great responsi-
bility—a little more would not add materially
to their trouble. Let the Committee, who
know so much more than any one else of the
necessities of each case, select each year the
names of candidates they suggest for election,
and submit them for approval or rejection to
the general meeting. Personal canvassing and
circulation of cards should be discouraged as
much as possible; but each subscriber would
have the right to object to all or any of the
names selected by the Committee, and to sub-
stitute other names from the list of approved
candidates according to the amount of his dona-
tions or subscriptions as at present.

DATURA SUAVEOLENS.—The fine-looking speci-
men represented in our illustration (fig. 26), is a
species that has long been an inhabitant of our
gardens, and one that requires but simple treat-
ment. The plant was photographed in September,
as it stood in the centre of the conservatory at
Thelwall Heya, the residence of W. Loxo, Esq.,
near Warrington. Mr. POULTON, the gardener,
sent along with the photograph the following par-
ticulars in regard to the plant: The Ferns and Palms
were arranged around it in order to hide the tub in
which it was growing. The height of plant from the
top of the tub was 5 feet, and the number of blooms
open at the time was 300. For the space of about
a fortnight it was a very fine sight, especially of an

evening, when its pure white flowers were fully
expanded, and gave off a delicious fragrance, which
was strong enough to be perceptible at some distance
away from the conservatory. This species of *Datura*
does well if afforded one good shift each year, and an
occasional top-dressing of rich compost, and it should
never be allowed to suffer from lack of water during
the growing season. After blooming, it is pruned
severely, stored away in a Peach-house, keeping it
cool and dry till growth re-commences in the spring.

LINNEAN SOCIETY.—On the occasion of the
evening meeting, to be held on Thursday, February 3,
1898, at 8 P.M., the following papers will be read,
viz., 1, "On the Muscular Attachment of the
Animal to its Shell in some Fossil Cephalopoda
(Ammonoidea)," by Mr. G. C. CRICK, F.G.S., F.Z.S.;
2, "The Comparative Anatomy of certain genera of
Cycadaceæ," by Mr. W. C. WORSDELL, F.L.S.

VEITCH MEMORIAL TRUST.—At a meeting of
the trustees, held on January 19, Dr. MAXWELL
MASTERS in the chair, it was unanimously resolved
that medals for objects to be hereafter determined
should be allotted for the present year, at exhibitions
to be held at Bristol, Leicester, and Cardiff respec-
tively. A sum of £20 was voted to the trustees of
the Lindley Library towards the preparation of the
catalogue now in progress. Medals were also allotted
to M. MARLIAU, in recognition of his success as a
hybridiser; to M. ED. ANDRÉ, of Paris; and to M.
le Comte DE KERCHOVE, of Ghent, President of the
Royal Agricultural and Botanical Society of Ghent,
for their respective services to horticulture.

ROYAL BOTANIC SOCIETY.—A meeting of the
Fellows of the Royal Botanic Society was held on
Saturday afternoon in the museum at the Society's
gardens, Regent's Park. Mr. C. E. LAYTON presided,
and there was an unusually large attendance. Four
new Fellows were elected, including Dr. COLLINS,
Chairman of the London County Council, and nine
were nominated for election at the next meeting.
Professor HENSLOW read a paper on "Plant Vari-
ations," which he illustrated by means of a large
number of photographs reflected upon a screen. He
described the various monstrosities, or departures
from the normal structure, of different plants, and
traced in many cases the gradual transition from
the original to the "sport," showing how the
character of the latter had become fixed or hereditary,
and was now looked upon as quite the normal form.

BORSODORF REINETTE OF DOBERAN.—Under
this name, says Dr. Dammer, a new variety of the
well-known Borsdorf Reinette was shown by Garten-
bau-director MATHIEU the doyen of German pomology,
at the last meeting of the Berlin Horticultural Society.
The plant was raised from seeds of the common Borsdorf
Reinette by Count FINK at Doberan in Mecklenburg.
It resembles the mother plant perfectly as regards the
fruit, taste and flavour, which, as well as size, are quite
the same, but there is more red colour upon its sur-
face. The genuine form of the Borsdorf Reinette has
one fault: it begins to fruit very late; the trees are
20-25 years old before they begin to flower. But
what fruit-grower can wait so long a time in our
epoch of steam and electricity? Gartenbau-director
MATHIEU has proved the new variety, and upon
his authority, it may be said, that it is an early-fru-
iting one. That it is a very fine acquisition for our orchards,
as the Borsdorf Reinette is esteemed as the best apple
of all.

BRITISH SEEDS ABROAD.—Messrs. JAMES
CARTER & Co., of 237, High Holborn, write on this
subject as follows:—"On p. 53 you invite testimony
as to the work of British seed houses abroad. We
may state that we have published catalogues in
French for over forty years [with metrical weights,
&c.], and on various occasions have issued
special lists in German, Russian, Swedish, and
Spanish. Our own travellers go regularly to
every part of the world where seeds are in demand.
In respect to seeds going to outlandish places, we
may state that we have lately sent a quantity to the
Island of Tristan d'Acunha, a lonely spot in the
South Pacific Ocean; and we also send at regular
intervals to Pitcairn Island, where both vegetables

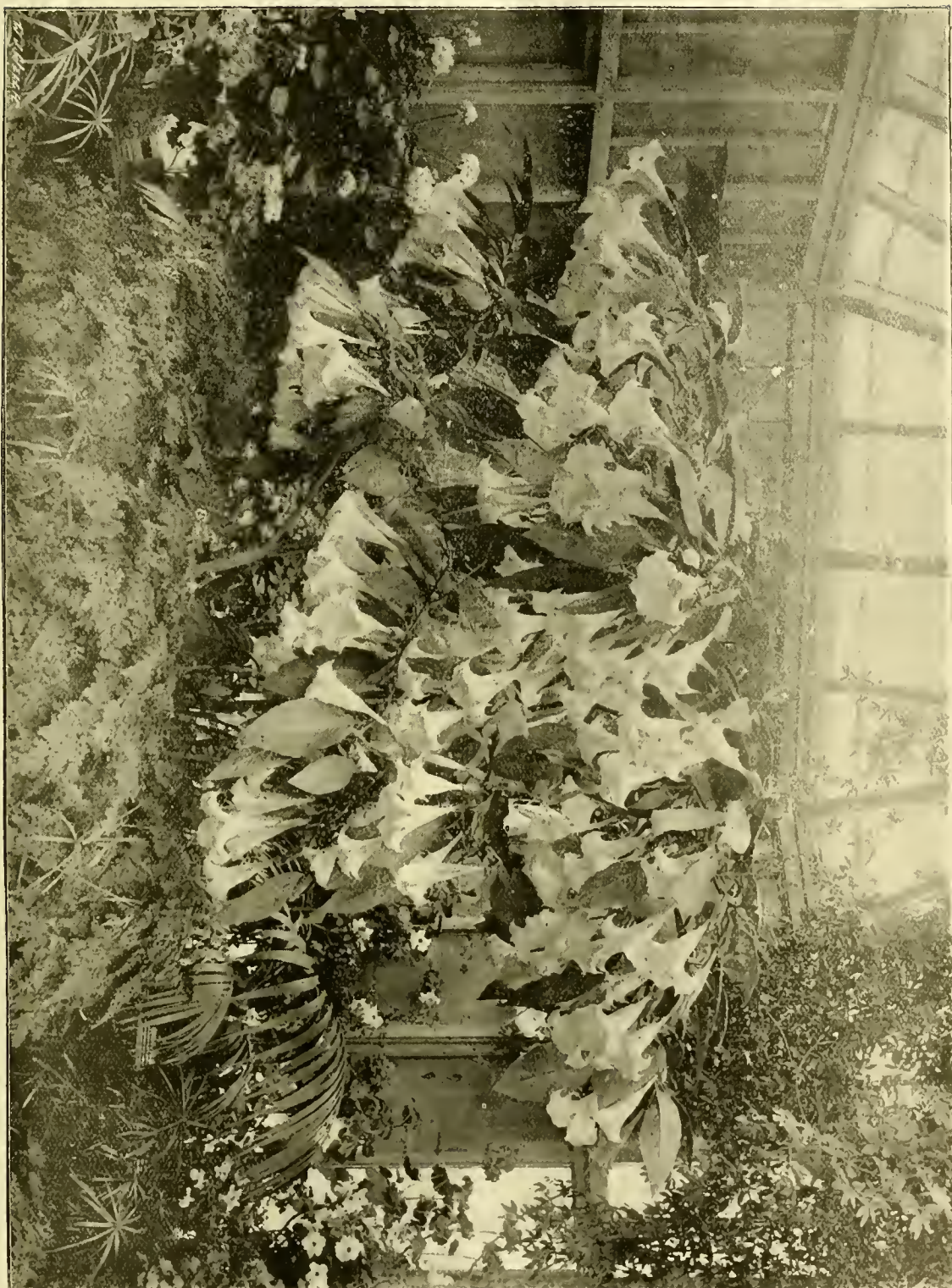


FIG. 26.—*DATURA SUAVEOLENS* IN THE GARDEN OF W. LONG, ESQ., THEWALL HYS, WARRINGTON: FLOWERS WHITE, FRAGRANT. (SEE P. 70.)



and flowers are greatly appreciated by the descendants of the mutineers of the *Bounty*. Only last week we were commissioned by the officer commanding the military expedition now in Uganda (Central Africa), to prepare a large assortment of seeds for growth at the headwaters of the Nile, when they reach there. A box of our seeds for cultivation in the Virgin Islands formed one of seventeen parcels received by the Post-office during the last twelve months. On another occasion recently we were required to forward some seeds to a country not included in the Postal Guide, and had several formalities to go through before the Post-office would take charge of the package. From these items it may safely be said that our seeds go to the uttermost parts of the earth as pioneers of civilisation. We believe we are the only seed house that issues a work on gardening giving world-wide information, the second edition of which has just been issued, all available copies of the first print having been bought up by a Colonial Government."

— Messrs. HURST & SON, of 152, Houndsditch, E., remark:—"Referring to your note on British seed catalogues for foreign circulation, permit us to say that we have for the last twenty-five years not only issued catalogues in foreign languages, but have sent out a representative, who has travelled regularly between Norway and Sweden and the extreme south, even to Algiers. Latterly the French Government have done their utmost to destroy this trade by imposing a heavy duty, and by refusing to accept any evidence of the English origin of such seeds as Peas, even declaring that no Peas are grown in England, despite sworn testimony to the contrary. Other countries—Norway, Sweden, and Denmark—demand a heavy license-fee from foreign commercial travellers, endeavouring by that means to prevent competition."

DR. HULIN, who acted as president of the party of Belgian horticulturists when they favoured us with a visit in 1883, has recently died at Ghent at the ripe age of 86. Belgian papers speak of him as the friend of the poor and of the labourer.

NEW YORK BOTANICAL GARDEN.—One of the last events of the old year was the beginning of actual construction-work upon the New York Botanical Garden, an event which cannot but be fraught with importance, and we hope productive of incalculable good. On December 31, 1897, President McMILLAN of the Department of Parks, on being presented with a new pick and shovel by Messrs. PARKER & PARSHLEY, of the JOHN H. PARKER Company, contractors, formally started the first work on the museum building. There were also present Dr. N. L. BRITTON, Director-in-Chief of the New York Botanical Garden; Mr. JOHN I. KANE, of the Board of Managers; Dr. JOHN K. SMALL, of Columbia University; Mr. LEONARD BARRON, Editor of *American Gardening*; Professor A. H. DUNDON, of the Normal College; Mr. SAMUEL HENSHAW and Mr. GEO. V. NASH, of the staff of the New York Botanical Garden; and others. The pick and shovel used on this occasion will in due course be deposited in the museum building.

GARDENING IN EGYPT.—Mr. WALTER DRAPER is about to publish a book devoted to gardening in Lower Egypt, and treating of the climate, soil, laying-out of the garden, suitable trees, shrubs, climbers, Roses, Palms, succulents, vegetables, &c.

A EUROPEAN FORSYTHIA. — Dr. ANTONIO BALDACCIO has discovered in Albania a shrub differing but little from the Chinese *F. suspensa*, save in the shorter petioles. We shall hope shortly to see living specimens at Kew; for however interesting may be the fact from the point of view of botanical geography, it is still more so to witness the "bird in the hand" at Kew.

NEWSVENDORS BENEVOLENT AND PROVIDENT INSTITUTION. — The fifty-ninth annual general meeting will be held at the Memorial Hall on Tuesday, February 15. President, the Right Hon. Lord GLENESK, will take the chair at 7 o'clock precisely. The annual festival dinner will be held at the Hotel

Cecil on Wednesday, May 11. Mr. CEIL B. HARMSWORTH will preside, and his brothers, the Messrs. ALFRED and HAROLD HARMSWORTH, with many other friends of the Institution, have promised to attend this gathering.

NEWCASTLE-ON-TYNE FLOWER SHOWS.—We have received a copy of the schedule of the above. The spring show will be held in the Olympia on Wednesday and Thursday, April 20 and 21, 1898. The summer show will be held in the Recreation Ground, in conjunction with the Northumberland Agricultural Show, on Wednesday, Thursday, and Friday, July 13, 14, and 15, 1898. The Royal Horticultural Society's Council, as has already been noticed in these pages, have accepted an invitation to be present, and will send a deputation with full powers to make awards. The attendance at the last joint show in the year 1893 was enormous, and the financial result was a very successful one. Copies of the schedule may be had from the Secretary, 51, Westgate Road.

THE LONDON WHOLESALE FRUIT AND POTATO TRADES' AND GROWERS' BENEVOLENT SOCIETY.—The annual meeting of the Society will be held at the Tavistock Hotel, Covent Garden, on Tuesday, February 1, 1898, at 6 P.M. The Society is still in its infancy, but has a balance in hand of £231, investments to the amount of £2492 11s. 1d., and distributes in pensions £138 10s.

FRUIT FROM THE CAPE.—The authorities at African House, Bishopsgate, E.C., inform us that fruit from the Cape, per Union line of steamers, are now on their way here, and may be expected to arrive in about a week's time. It is to be hoped that an improvement may this season be shown in the samples submitted to auction.

PEOPLE'S PALACE HORTICULTURAL SOCIETY.—Another of the series of popular lectures on gardening was delivered at the People's Palace, Mile End, on Saturday Evening, the 22th inst., by Mr. RICHARD DEAN, V.M.H., on "The Life History of a Flower," illustrated by the florist's Tulip. There was as usual a large attendance of members, coloured diagrams being employed, while all the technical terms were plainly written on a black-board and explained. After a brief history of the flower, and a passing allusion to the Tulipomania, a diagram of a flower was shown with its seminal organs, and the process of fertilisation explained; a diagram of a seed was shown, the method and time of sowing given, with illustrations of that singular characteristic of the seedling Tulip, the production of "droppers." Coloured illustrations of the breeder stage were shown, then the flamed and feathered characters, with other characteristics of the flower, the lecturer winding up with an account of the procedure of a Tulip-show in Cheshire. Details of culture were supplied, and an effort was made to interest the audience in a flower which was at one time grown for exhibition in several parts of the east of London. A hearty vote of thanks was passed to the lecturer. The first of four flower-shows during the year will take place on March 31.

"THE CULTURE OF VEGETABLES AND FLOWERS FROM SEEDS AND ROOTS:" SUTTON & SONS, READING. (SIMPKIN, MARSHALL, HAMILTON, KENT & CO., London.) The seventh edition of an eminently practical hand-book, wherein, in reasonable compass, are directions for the culture of vegetables and flowers in the garden, with instructions for the year's work therein. There are also chapters on the chemistry of garden crops, on lawn and tennis-grounds from seeds, on the pests of garden-plants, fungus-pests of garden-plants, and those of certain flowers. The principal parts of the book are alphabetically arranged, and the addition of an index renders the desired information still more easy to find. Of the reliability of the cultural and other directions it is scarcely necessary to speak.

VIOLA MRS. ASTOR.—The managers of the Hood Gardens, Totnes, enclose a few blooms of Mrs. J. J. Astor, a new American Violet. The colour, a

reddish-lilac, is novel and pretty, being darker than Madame Millet, and the plants are, we are told, more vigorous than that variety. It is very free-flowering, and seems to be an early bloomer. We cannot say much in favour of the perfume.

ROBERT BEGBIE returns his heartfelt thanks to those subscribers to whom he is indebted for having placed him by their votes on the pension-list of the Gardeners' Royal Benevolent Institution on the 20th inst.

WILLIAMS' MEMORIAL MEDAL.—At a recent meeting of the Williams' Memorial Trustees, Dr. Masters in the chair, it was decided to offer two Silver Memorial Medals at the summer show of the Royal Botanic Society to be held in May next, and two Silver Memorial Medals at the York Gala to be held this year.

PUBLICATIONS RECEIVED.—*Report upon the Essex Field Experiments during 1896-97.* These trials were undertaken at the instance of the Essex County Council, and the results are here carefully tabulated: 1, Manurial trials on Beans followed by Wheat; 2, Manurial trials on permanent pasture; 3, Experiments on laying down land to grass; 4, Manurial trials on Oats followed by Mangolds.—*Twenty-first Annual Report for 1897 of the National Auricula and Primula Society* (Southern Section). This leaflet announces the gratifying fact that the past season has been the most successful for many years, owing to a large accession of new members and a consequently improved financial position.—*The West Australian Settler's Guide and Farmer's Handbook*, Parts II, and III. Issued by direction of the Bureau of Agriculture. Valuable for intending or established colonists. Part II. is devoted to the Settler's Outfit, Clearing, Ringbarking, Cultivating, Farm Book-keeping, &c.; Part III. to Native Grasses and Fodder-Bushes and Plants, Special Products of the Farm, Tobacco, Sugar-Beet, Rape, Potatoes; laying down land to grass, noxious weeds, and native poison plants.—*Report of the Botanist L. R. Jones, from the tenth Annual Report of the Vermont Experiment Station* (1896-97). The more important subjects under discussion were: Potato diseases and remedies Orchard diseases and remedies, Observations upon Oat Smut, the Onion-mildew, and the Orange Hawkwood or "Paint Brush."—*Unique Journal Horticole Japonais* (Journal of the Japanese Horticultural Society), April and November, 1897.—*Dictionnaire Pratique d'Horticulture*, 66th Livraison. This publication is advanced as far as the word *Spigelia*.—*Liste des Graines récoltées par le Jardin alpin d'acclimatation, Genève.* H. Correvon, Janvier, 1898.—*Index seminum in horti Musci Parisiensis anno 1897 collectorum.* From M. le Directeur du Muséum d'histoire naturelle, Paris.—*Katalog der Bibliothek des Vereins zur Beförderung des Gartenbaues* (Berlin, 1897).—*Illustrierte Flora* (Jänner, 1898).—*Illustrierte Nützliche Blätter* (Jänner, 1898).

PLANT PORTRAITS.

- ACTINIDIA KOLOMIKTA, *Revue Horticole*, January 16.
APPLE REINETTE DE CEPLÉ, *Bulletin d'Arboriculture*, &c., January, 1898.
ATHEMIS TINCTORIA, pale var., *Garden*, December 18.
ERIGERON SPECIOSUS, *Garden*, December 18.
GREVILLEA FORSTERI, *Revue de l'Horticulture Belge*.
IPOMEEA FERRINGIANA, Damier (see *Gard. Chron.*, Dec. 11, 1897, p. 410; *Gartenflora*, t. 1446).
LAPAGERIA ROSEA VAR. LIESEMANNI, *Gartenflora*, December.
LILIUM SUPERBUM, *Mechan's Monthly*, January.
PEAR BEURRE MONTECAT, *Bulletin d'Arboriculture*, &c., December.
PINUS JEFFREYI, *Gartenflora*, January 15.
PRIMULA OBSCURA VAR. MULLE. LUCIENNE DE HIRSCH, *Revue de l'Horticulture Belge*, January.
ROSEA LUTEA, *Garden*, January 8.

THE PITCULLEN VINERIES.

THE fair city of Perth and its environs are celebrated for picturesque beauty and smiling plenty. Years ago, this town was famed for its luscious Jargonelle Pears, some of the finest of which were grown within the city's boundaries. Others were found

on the Bridgeend and Belwood side of the Tay. These ancient trees of Jargonelle almost certainly whetted the appetite for horticulture that so greatly enriches the Tay bank opposite the North Inch to-day. On this charming site the merchants of Perth have built their palatial homes, and planted their miniature parks and their gardens. The scene must be actually seen for its beauty to be duly appreciated. Probably, it is not excelled in these islands or elsewhere. Others beside bumptious Scotchmen have compared the beauty of the Tay at Perth with that of the Tiber at Rome. In three points, the verdure of the grass, the stateliness and extent of its timber, and the charming environment of the surrounding mountains, the Tay may match the Tiber.

I am still conscious that we are in the land of the mountain and the flood; the land of brown Heath and shaggy fell; yet here we have a fullness and softness of picturesque beauty by no means common to Scottish scenery. It is, therefore, no matter for wonder that we find many fine estates in the near neighbourhood, to wit, Dupplin, Mencrieffe, Methven, Drummond Castle, Scone, Athole. And the majority of the gardens that adorn the banks of the Tay are mellowed with age, as well as enriched with a great variety of new plants and trees. Broadly stated, the gardens at Pitcullen, the residence of A. Coates, Esq., are bounded with timber trees, that afford shelter and shadow, enabling the pedestrian to find pleasant walks in the grounds in all kinds of weather. By carrying the walks round under the trees, introducing shrubs, Ferns, and flowers at different points, freshness, interest, and variety are provided. Still further, variety is gained by planting groups of Roses, beds of flowering plants, extensive stretches of lawn, and fine solitary trees, and groups of them.

Neither do the fruit trees and flowers, nor the vegetables in the kitchen garden, seem to suffer from the proximity of the big trees. The larger part of the garden lies on falling ground; the crops out-of-doors and the fruits under glass are pictures of good health and fertility. The land on which Pitcullen Gardens stand culminates, about three miles off, at the Hill of Kinnoull; from which the Carse of Gowrie is seen, with the Tay meandering to the sea. The higher parts of the grounds command charming views of the landscape to a point beyond Scone Palace. Although Scone is my native place, I had never seen so much of the beauty of the district as can be seen from Kinnoull Hill.

THE VINERIES.

Those who visit Pitcullen at once recognise in Mr. Leslie, Mr. Coates' gardener, an able, all-round cultivator, and most gardeners will often have heard of Leslie, of Pitcullen, and many have observed his exhibits of first-rate Grapes. May I linger on the threshold of a very unique range of vineries to say that Mr. Leslie has three houses filled with Peach-trees; also Melon and Tomato-houses, stove and greenhouse, fernery, &c., in all of which the inmates were in excellent trim. His Grapes have in recent years been observed at most of the best shows in Scotland, winning for him the highest prizes at Edinburgh, Glasgow, Dundee, and other towns. The Vines showed at the time of my visit clusters of Grapes perfect in every point. To walk through vineries filled with Vines carrying fine foliage and bunches of perfect finish is alone an instructive treat. The first glance of the five Pitcullen vineries is rather disappointing. The massive character of their construction is lessened a little by the peculiarity of the site, which obliged the builder to erect them on different levels; and being less than half-spans, they look too lofty, but not top-heavy. The fact is, the five vineries, ranging from 30 to 47 feet in length, are erected on a sloping brae of considerable height, and each is 18 inches higher than the one lower down the slope. When the eye gets used to the effect, it is as pleasing as unique. Entering from the lowest level, the clusters of Grapes seem to grow in size, and in density of colour and bloom.

These vineries are 17 feet high, and 14 feet wide.

The glass-sashes in the front are 4 feet high; the front rafters have a run of more than 17 feet, and those at the back of 7½ feet. There can be no question that this form of vinery affords the Vines much light, and facilitates ventilation, as is testified by the vigour of the Vines, and the size and finish of the bunches.

The vineries are of the same dimensions as regards width and height throughout, and differ only in length. The Muscat-vinery is 47 feet long; and in bunch, berry, leaf, wood the Vines are all that could be desired. The next house is 30 feet long, and is furnished with Black Alicante and Gros Maroc

more than twelve years, for young Vines are substituted for aged ones as occasion requires, well as new vineries built.

The depth of the Vine borders is about 33 inches. The width of the outside borders 7 feet, and 9 feet that of the inside border. The total width inside the vineries is 14 feet, disposed of as follows:—Nine feet for border, against the front wall, the Vines being planted within 7 inches of the wall; the distance between the Muscat Vines being 5 feet, and between other varieties 4 feet. The path occupies 2½ feet in width, and under this the hot-water pipe-mains are carried, branches going off wherever



FIG. 27.—A BUNCH OF BLACK ALICANTE GRAPES. (SEE P. 71.)

varieties, these Grapes looking all the blacker for their proximity to the Muscat of Alexandria in the next vinery. The other three vineries forming the half-span range are also 30 feet long in each case; the third vinery contains Gros Colmar Vines with big berries with a bloom on them like that seen on Plums; the fourth is a Black Alicante vinery, and the fifth or earliest is furnished with Black Hamburgs and Madresfield Court varieties, which were doing as well as the thicker-skinned hardier kinds.

Besides this range, there is also another narrower early vinery that is 30 feet long and 10 feet wide, furnished with Black Hamburgs, and yet another 50 feet long and 13 feet wide, that was planted with Gros Colmar in 1896. There is no sign of decadence in the older Vines, most of which have been planted

they are wanted. The remaining space of 2½ feet forms a border for Vines on the back wall. No doubt the conditions of this border in regard to drainage, composition of the soil, provision of root-food, &c., are all that skill can suggest or money provide, yet Mr. Leslie rejoices in the fact that many of his Vine-roots have been found straying away into the kitchen-garden quarters, a distance of 18 yards from the borders; and no attempt seems to have been made to limit the Vine-roots to the borders either outside or inside. As to Vine-manures, for many years the only artificial stimulant has been Cross's Vine-manure, which has given complete satisfaction.

One thing was soon noted, viz., the tops, as well as the roots, have more freedom than in most cases.

Mr. Leslie's canon of pruning may be put into a nutshell: cut back to the most promising bud on the lateral rather than to the bud that is closest to the main rod; and this especially in the case of Black Alicante and Muscat of Alexandria. The Vines in return for this freedom yield bunches and berries and wood of abnormally fine quality.

The figs. 24, 25, and 27, are given as mere samples of the Grapes grown at Pitcullen, as may be seen by noting fig. 27, that of a bunch of Alicante, weighing 13 lb. 6 oz., grown there last year; also a bunch of Cooper's Black or Gros Maroc of about 3 lb. in weight (fig. 25). Both of these show perfect finish, although neither illustrates the average size of these fine varieties.

The two figures of bunches of Gros Maroc or Cooper's Black (figs. 24 and 25) confirm the opinion held by Mr. Leslie and other growers, that they are one and the same thing. In this case, the photograph of Cooper's Black was obtained from a gardener who declared it to be quite distinct from Gros Maroc, and the bunch to have grown on a scion that was grafted on a Vine of Gros Colman. The Gros Maroc at Pitcullen has been grown on its own roots for fourteen years. Mr. Leslie's verdict is that the two varieties are identical, or at any rate the foliage, bark, length of stalk, character, form, size of bunch, are so much alike that no difference can be detected, and the flavour is identical. Hence, possibly horticultural societies at future shows will refuse to admit Cooper's Black and Gros Maroc as distinct varieties; and this popular market Grape will in future be known as Gros Maroc. Mr. Leslie was good enough to give his emphatic testimony in favour of Mr. Kirk's Vine Border Tester.

This article does not tell one half of the story of these famous graperies and their skilful management. D. T. Fish, 12, Fettes Row, Edinburgh.

A GARDEN TOOL.

THE implement represented in fig. 28 is a very useful one in gardens, and more particularly on soils that are light or gravelly, as an alternative for the hoe, stirring the soil to a greater depth, being also equally expeditious; it should find a place in every garden. I am informed it is made in three sizes (the figure shows the smaller size). It is the invention of a fellow member of the craft in New Zealand, where it is evidently appreciated if one may judge by the testimonials to hand. It will be gathered from the picture that the tines rotate at an equal rate, hence it is continuous in its action. The patentee is Mr. A. Hosking, Manawatu Foundry, Palmerston, North, N.Z. J. Hudson.

HOME CORRESPONDENCE.

ORNITHOGALUM LACTEUM.—I have, on my table a bloom of a pretty but not common flower, which I brought from the Cape, and which was cut on November 28. It is still quite fresh and sweet. It is *Ornithogalum lacteum*, known by the Kaffirs as "Chittering Chee," and is well known in the colony for its wonderful vitality, lasting in bloom until its smallest bud is fully developed. I quite expect it to last for another week, making nine weeks in all since it was gathered. Francis Fox, F.R.H.S. [We have had blooms of this species in water for three months. They were also cut in S. Africa. See *Gard. Chron.*, Dec. 23, 1893, p. 780. Ed.]

WORM-EATING SLUGS.—I am indebted to Mr. Henry Lavers, of Colchester, for the following reply to my enquiry, how slugs ejected from *Testacellæ* are observed to be partly cut asunder at distances of about an inch apart: "I think the lingual teeth of all *Testacellæ* are suitable for cutting; they are a series of sharp points, each of which must when drawn across the worm, cut a furrow which would very quickly sever the worm. I know that if you hold one in your fingers it will quickly turn and bite your skin, and draw blood very soon, and a very nasty sensation it is too." W. Thomson, Bishops Teignton, South Devon.

THE GARDENERS' BENEVOLENT ELECTION.—I cannot of course tell what may be the general opinion

of subscribers to this fund in respect of the recent election of pensioners, but to me it is exceedingly disappointing. It has become a stereotyped sermon or aspiration with all who refer to the fund, and advocate its claims, that gardeners ought universally to become subscribers that they may thus have prior claim on the fund's benefits, and provide themselves in their old age with a pension. That is a splendid doctrine, admirably calculated to encourage thrift and self-dependence. What is the outcome of it? I turn to the result of the recent election as reported in your pages last week, and find that out of the nine pensioners elected by the ballot, no fewer than five never have been subscribers at all! Is not that at once putting a premium on thriftlessness, and disregarding common care for the future in sickness or old age? What a different and nobler doctrine the United Horticultural Provident and Benefit Society practises! Being most desirous that my few votes should not be wasted, I gave them to a candidate who had already to his account nearly 2,300 votes, was 76 years of age, and had been a life member for seven years! Naturally I expected that such an old and worthy candidate must be elected. Judge of my surprise on finding not only that he was not, but that two others, both 66 years of age, or eight years younger than the other, and one starting with but 400 votes and the other with 751, were elected. I may be told it is all the chance of the ballot, but that won't do for me.

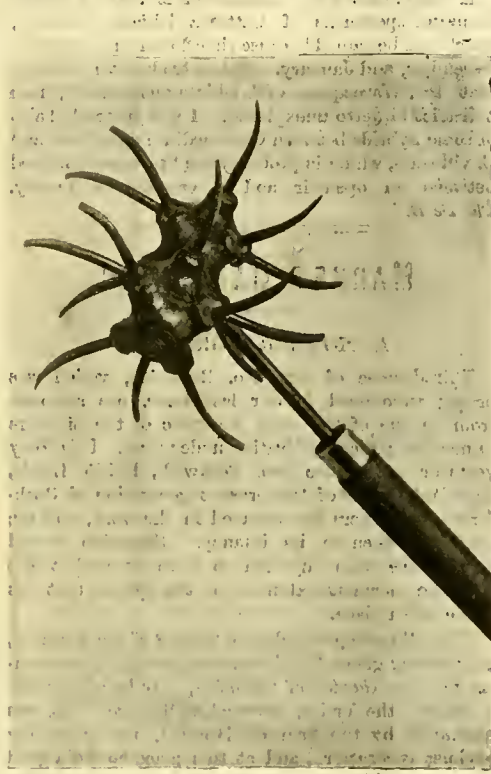


FIG. 28.—A REVOLVING CULTIVATOR.

Admittedly both these latter were two out of the four subscribers elected, but why favour men only 68 years old over one 76 years of age, and having such an enviable start in votes? In a previous letter to the *Gardeners' Chronicle*, I pointed out that out of the 44 candidates 23 were subscribers or the widows of such, leaving 21 non-subscribers. The result is to give distinct encouragement to non-subscribers, by electing five out of the lesser or non-subscribing lot, and four only out of the greater or subscribing lot. That is practising what chairmen at banquets and dinners are being constantly coached to preach, with a vengeance. Of the candidates, I have personal knowledge of one only. Most of them elicit one's deepest sympathy, having been subscribers several years. Such candidates as Nos. 4, 6, 15, 20, 32, 34, 40, 41, 43, if none be dead before next year's election should all be made pensioners, and doubtless would be did every subscriber fill and sign his voting paper himself, according to his unbiassed judgment as to the merits of each case. One other fact is worthy of mention: out of the six highest on the poll, only one was a subscriber, and that only for five years, commencing at the age of 70. Is it, indeed, not time that only subscribers of at least five

years should be eligible to become candidates? I should have added, that whilst the man who had nearly 2,300 votes had been a candidate five years, the one starting with 400 had not previously been, and the 757 candidate once only. A. D.

MARKET REPORTS AGAIN.—I notice in the market reports that Marguerites have been quoted all the summer, and are so now, at 2s. to 4s. per dozen bunches. I only obtained 5d. per dozen for the same flowers in early autumn. W.

A HALL FOR HORTICULTURE.—In the discussion of this subject, one of your correspondents writes: "Mr. Dean recommends Mr. Divers to try a show in London depending upon the gate-money to reimburse the outlay. No sane person would attempt such a scheme, but to some extent such show would depend on subscriptions."—Why should such a show not succeed in London? In other places success has been emphatic and permanent. In connection with the Chrysanthemum shows of the Scottish Horticultural Association, there are practically no subscriptions or donations; the members' annual subscriptions of 2s. 6d. are applied to other purposes, and with the exception of £20 generously voted as a special prize by the Magistrates and Town Council of Edinburgh, and a few donations as special prizes by various tradesmen, amounting to about £50 (inclusive of the City donation), the whole prizes and expenses of every description are paid from the gate-money and a small sum received as rents of sale stalls, and for the right to publish the show catalogue. As everybody knows, the prizes offered are on the most liberal scale, and the amount spent on decorations, music, hospitality, &c., are by no means parsimonious. We believe in the best of music, but do not descend to a concert-room or ballroom as mentioned by your correspondent H. Nichols. The results have been of the most gratifying description. A sum of about £500 having been given in charities during the eight years the shows have been carried on in the Waverley Market, from the surplus funds, and the Association have a balance in hand as a reserve fund of nearly £700. Surely what has been done in Edinburgh could be done in London. We look to the metropolis for light and leading on most subjects, and it is difficult for an outsider to understand why an exhibition got up on popular lines, and carried through with spirit, should be impossible there. Of course, the Waverley Market in Edinburgh is peculiarly suited for such exhibitions, standing in the very centre of the city, and having ample space for a public promenade. It may be, too, that entertainments of every description are so numerous in London that a flower-show by itself may seem tame, and yet it would seem that, to many of its teeming multitudes, such a show would be a welcome relief. Mr. Dean, as representing the Committee of the National Chrysanthemum Society, probably knows difficulties not apparent to outsiders, as, doubtless, the subject has received careful discussion; or, is it that the National Chrysanthemum Society, like a child commencing to walk, is so afraid to trust its own legs, that it clings to something it imagines stronger than itself for support? M. Todd, Edinburgh.

WATER-BOUQUET.—In "Notices to Correspondents" in to-day's *Gardeners' Chronicle*, I see an answer to an enquiry about a "water-bouquet," which shows that the question has not been understood. May I therefore say that a water-bouquet is made in the following manner:—Take a stone of as rough a surface as possible, tie on to it the flowers and foliage of your bouquet, such as scarlet Pelargoniums and Maidenhair or Asparagus. Lower the stone carefully on to a dish, which you have placed in a bathful of water; then place a glass-shade, such as are used for wax-flowers, &c., over the flowers on the dish, being careful to put it down sideways, so that it is completely filled with water, excluding all air, and then gently bring the dish up with the bouquet under the glass-shade upon it. The flowers will last thus for weeks. A. G. B.

TREES AT MOTTISFONT ABBEY.—In answer to "A. D." in last week's issue, respecting the ancient Oak-tree, I may say it is still existing, and doing fairly well. This grand old pollard Oak measures 35 feet in circumference at 3 feet from the ground, and at 6 feet is 33½ feet. There is still an entrance to the interior, the hollow of which is 19 feet in circumference, but the entrance is gradually getting smaller. With respect to the large Plane-tree which stands on the lawn, near the bank of the river, the roots are like net-work in the bed of the river, which, no doubt, is

the secret of the tree's success. There are several other fine Planes growing here, measuring over 20 feet in circumference. *H. G. Reed, Mottisfont Abbey Gardens.*

VIOLAS.—I am not disposed to take much notice of this controversy between the Rev. Dr. Williamson and Mr. W. Sydenham, but I think it worth pointing out that Mr. Williamson's article almost in its entirety is based, so far as the merits of varieties for bedding purposes are concerned, upon the Report of the Viola Conference, Royal Botanic Gardens, August 7, 1896, whereas Mr. Sydenham's opinions are his own. Not one of the varieties Mr. Sydenham names is included by the conference committee in their lists. I enclose a selection which may be of service to intending buyers, in view of the approach of the planting and purchasing season:—

Report as to the Inspection of the Viola Trial, at the Royal Botanic Society's Gardens, August 7, 1896.

The committee next proceeded to make selections of the best varieties of different types and colours, dividing them into two main sections:—Firstly, dwarf-growing, having close, compact, tufted habit; and secondly, those of a taller and more spreading growth, well adapted for association with other plants which would afford them a certain amount of support:—

Dwarf.	WHITE.	Tall.
Niphetos, syn. Marchioness	Countess of Wharcliffe	
Countess of Hopetoun	Gigantea	
Pencitland		
Snowflake		
	CREAM.	
Sylvia	Abington	
Lemon Queen	Nellie	
	PRIMROSE, OR SULPHUR.	
Ardwell Gem	Sulphurea	
Luteola		
	DEEP YELLOW.	
Princess Louise	Mary Gilbert	
Lord Elcho	A. J. Rowberry	
Bullion		
	DARK BLUE, OR VIOLET.	
True Blue	Archie Grant	
Mrs. C. Turner	Max Kolb	
	BLUE.	
Roland Graeme	Ivanhoe	
	LIGHT BLUE.	
Diana	Favourite	
Blue Gown		
	LAVENDER, OR LILAC.	
Rosea pallida	Duchess of Sutherland	
Lottie McNeil	Bridgroom	
	Mabel	
	PURPLE.	
Acme	J. B. Riding	
Mrs. Gordon	Dorothy Tennant	
	ROSE.	
Princess Ida	William Niel	
Rose Queen	Rosioe	
	Magie	
	BLUSH.	
	Charin	
	Norah May	
	EDGED, OR BORDERED.	
Duchess of Fife	Cissy Thornley	
Border Witch	Colleen Bawn	
Blue Cloud		
	FANCY.—COUNTES OF KINTORE TYPE.	
The Mearns	Countess of Kintore	
Bethune	Isabel Spencer	
Cissy Mellowes	Princess Beatrice	
Columba	Lady Amory	
	Mr. H. Bellamy	
	STRIPED.	
	Lilly Langtry	
	H. W. Stewart	

The Committee responsible for the selection was: Messrs. A. J. Rowberry (Chairman), J. F. McLeod, Wm. Cuthbertson, C. Jordan, J. W. Moorman, George Gordon, and Richard Dean (Secretary). Surely a strong and representative lot of gentlemen. *Anglo-Scot.*

THE PRUNING OF APPLE AND PEAR TREES.—Permit me to reply to Mr. Hott's queries. Apple and Pear trees, all things being favourable, raised from buds or grafts, even if they make 7 feet of growth, will emit shoots, in garden parlance "break" regularly, and these take an outward direction, and a fruiting specimen is soon found. Headed-down trees have a more or less upward tendency in their branches, which they keep till the weight of fruit bends them to the semi-horizontal position; and the Blenheim Orange Pippin, by not fruiting so early as, for example, Devonshire Quarrenden, grows more rigidly upright for a much longer period than the latter, until ultimately it has also to bow its branches as the more fruitful period sets in. Permit me also to say "J. K." does not presume to teach "old hands," for he is himself still a student of Nature, and, unlike many growers of to-day, whose early life was spent under glass, he has closely studied hardy fruits, and paid much attention to what has appeared on the subject in the pages of the *Gardeners' Chronicle*. I find that pruning to a certain given number of

inches will not always work; soils, kinds of stocks, and localities, have varying effects on growth. For instance, Pitmaston Duchess on the Pear stock, side by side with another on the Quince stock that are five years old, had 8 feet of growth, whilst the other had only 3 feet, yet both bear fruit, and one does not make much growth. In another soil the one might not fruit at all, and the other bear heavily. My objection to the pruning of young trees is, that it tends to multiply the branches close home, which may look very well then; but as the tree ages, they will mainly have to be taken off, for the chances of getting any fruit on them will then be very remote. *J. K., Wimborne.*

BELGIUM.

PLANTS AT L'HORTICULTURE INTERNATIONALE.

I NOTED here a fine specimen of *Saccolabium giganteum* album, with a raceme of very pretty pure white flowers; it is probably the only example of this remarkable variety to be found in Belgium. Very handsome also was *Cypripedium Arthurianum*, with twenty-eight blooms.

A very interesting introduction is that of twelve thousand specimens of *Cattleya labiata excelsior*, which will be valued because they flower in November, December, and January. This introduction followed that of *C. Warocqueana* (*C. labiata autumnalis*), from a district hitherto unexplored. I was interested also in some hybrids between *Cypripedium spectabile* and *C. villosum*, which is probably the first cross obtained between an open-air and a greenhouse variety. *Ch. De B.*

MARKET GARDENING.

A PIONEER "GROWER."

THE decease of Mr. Geo. Beckwith, which was briefly announced in our last issue, has removed from us one of the most energetic of the pioneers in market garden cultivation under glass. It is forty years or more since Geo. Beckwith, Philip Ladda, Rochford (father of the present generation of Rochfords), and others first engaged in the work, and the trade was then in its infancy. Sanguine indeed would have been any man to have guessed at that time the enormous extension of the system that has since taken place.

The following particulars of the life of the deceased, courteously given by his surviving son to a representative of the *Gardeners' Chronicle*, may be of interest.

Early in the forties, deceased, at the age of 22, was employed by the firm of Howard, manufacturing chemist at Stratford, and at this place he did a good deal of plumbing and mending of leaden tanks. For five years he practised this work, and at the expiration of that time Mr. Beckwith, who was specially good at mechanics, commenced business for himself as a hot-water engineer. He remained at this business for nearly ten years, during which time he provided and fixed hot-water apparatuses in plant-houses, and made iron-work used by the horticultural builder. Eventually he was forced to leave the premises, owing to the authorities building a sewer through the site, and forty years ago he took the "White Hart" at Tottenham. His energy was by no means exhausted in the management of a public-house, and he soon began to consider how best to utilize an area of four acres of land at the rear of the premises. Partly from his previous experience, and it may be also the advice of an old neighbouring florist, he built a plant house, and having made it pay, he raised another and another. Tricoloured Pelargoniums were the sensation in the horticulture of those days, and no one admired them more than Mr. Beckwith—they were his hobby. He grew Pelargoniums almost exclusively for the first few years, including Tom Thumb, and other varieties. Then for several years he was so engaged with the tricoloured sorts that each of the houses was given up to them. The propagation and sale of the plants

brought excellent returns, and much money was made. A new van being built at the time, its exterior was decorated by representations of the famous foliage. "Shortly before this period," said Mr. Beckwith, "I was just about to complete my apprenticeship to the smith's trade, and my father wrote to me, saying that if I was agreeable to take to market gardening, he would build other houses and make a business of it." This was done, and father and son then worked late and early to establish a business, and both of them being skilled mechanics, house after house was erected in a large measure by their own hands, boilers invented to suit their special needs, and success won. But Tottenham to-day is not the Tottenham of thirty years ago, but the effect that increasing smoke would have upon the cultivation of plants was foreseen many years ago. In 1885 about ten acres of land was acquired at Hoddesdon, near Broxbourne, and the late Mr. Beckwith's energy again applied to the building of first-rate houses, in better fashion than those at Tottenham. During the thirteen years there have been fifty built, and the last was only added in 1897. We cannot stop to describe them at any length now (though possibly we may refer to them again). In several respects they are unique. There are no brick walls, but the iron rafters which form the span are bent in three places: at the summit, and on either side, which consequently provide straight sides, and they are then embedded into walls of concrete. Concrete, iron, and glass, constitute the buildings, and few market nurseries have been built in a style approaching this for durability. It may be added that each house is 300 feet long by 20 feet wide. The building was done exactly after the ideas of the late Mr. Beckwith, and only four years ago, at the age of seventy-three, he sustained a fall of some 20 feet from a scaffold, when superintending some of the work. Little has been done of late to renovate the Tottenham houses, and the land, together with the "White Hart," will probably be disposed of in the near future, and the firm's business transferred entirely to Hoddesdon.

During the forty years deceased was engaged in market gardening he witnessed many and marvellous changes in the

PLANTS CULTIVATED,

in the prices obtained for produce, and in Covent Garden itself. But our note having already become longer than we intended, it must suffice to refer very briefly to a few of fashion's effects upon the industry. Though the remarkable decline in hard-wooded plants affected the late grower less than many others, as he never made a specialty of Ericas, it forced him to give up the cultivation of several plants popular at the same time as were Ericas. Camellias were once profitable, and realised 6s. a dozen blooms, but they have been thrown out long since. Cinerarias and Chinese Primulas in a large measure have shared a similar fate. Gardenias no longer give the returns they did, and Eucharis cultivation has been perforce abandoned, because the 10,000 plants that were once a paying item, gradually but surely dwindled away.

In the cut-flower trade, a serious fall in the price of Hyacinths, Tulips, and other bulbous flowers, has almost ruined this branch of the business, and, excepting Narcissus, Lily of the Valley, and Japanese Lilies, the forcing of bulbs has been nearly dropped. But market-gardening still pays handsomely if the best means be adopted to cultivate the varieties of plants or flowers the public most demand. The whole of the houses at Hoddesdon are devoted to the growth of flowers for cutting, the principal plants being Roses in pots (some 200,000), Lilies of the Valley; Raspail Improved, and other zonal-leaved Pelargoniums, also the so-called decorative Pelargoniums, Pansies (which pay capably), and Chrysanthemums. In respect of Lily of the Valley, Mr. Beckwith paid £3000 for crowns for forcing this season. Tomatoes are grown largely as a late crop when the Roses have been placed out-of-doors in the summer, and bedding-plants are grown in large numbers. More than 100 workmen are employed in the two nurseries. Such is the business that the late Mr. Beckwith and his

son have established, and it is worthy of remark that this success has followed the efforts of two men, neither of whom had any knowledge whatever of the cultivation of plants until they had embarked in the business. "But," said deceased's son, "father was an extraordinary enthusiast, a most ingenious man, and as good a mechanic as I have ever met."

After suffering the greater part of last year, Mr. Beckwith succumbed somewhat suddenly on the 16th inst., to "Bright's disease," at the age of 77.

SOCIETIES.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

JANUARY 17.—Under the auspices of this successful horticultural Association, a tea and smoking-concert was held in the Abbey Hall (by the kind permission of Messrs. Sutton & Sons) on Monday evening. Nearly one hundred members sat down to tea, which was presided over by the President, Mr. C. B. STEVENS. The tables were decorated with plants, &c., from the gardens of East Thorpe (Mr. Woolford, gr.). Among the company present were Mr. Leonard G. Sutton, Mr. M. B. F. Sutton, Messrs. T. Turton and Hinton, Chairman and Vice-chairman respectively of the Association for the season 1898; Messrs. J. Pound, Junr., Martin, Woolford, Smith, Dockerill, Chamberlain, Jones, Bright, H. G. Cox, Spencer, Parsons, Neve (Sindleshams), Townsend (Wellington College), Barfoot, Thatcher, Castle (Mortimer), Rigg, Pound Senr., Farey, Fixter, Hobbs (Caversham), Dearlove (Burghfield), Lacey, Wagstaff (Bearwood), W. H. Cox (Calcutt), &c.

"Strawberries from Seed, or the Cultivation of the Alpine Strawberry," was the subject of a paper read by Mr. JAMES HUDSON, of Gunnersbury House Gardens, before the members on the 24th inst.

In the discussion which followed the reading of the paper, the members taking part had to plead ignorance of the cultivation of the alpine Strawberry, but hearing what the lecturer said in its favour, and the fact that a dish of Strawberries during September and October would be a great addition to the dessert, they will no doubt give the plant a trial. Mr. Hudson said: the culture is of the simplest, and given weight for weight upon the same space of ground, the "alpine" will not be so white behind that of the average crop of other Strawberries. The French grow their stock from seed, but it is only within the last few years that English firms have catalogued the seed, although the plants from runners are, as a rule, offered in most of our Strawberry lists in a similar way to the large-fruited varieties. This plan of offering the runners instead of the seed tended against any extended culture. After dealing fully with the system of cultivation carried out at Gunnersbury, the speaker gave much valuable advice as to soils and their adaptability for growing alpine Strawberries, also the position most suitable. The two varieties best for general cultivation are Royal Amelioré and Sutton's Large Red Alpine, the former producing fruits 2 inches long, whilst the latter, although not quite so large, is equal to it in every other respect, and with some it would be preferred because of its more handsome shape. Other varieties worth growing are Belle de Meaux, colour of the deepest red, and flavour first-rate; Berger Improved, a variety very highly thought of by French growers; and Large White Alpine, which on account of its colour makes a pleasing change for the dessert. A box containing some 120 to 140 spikes of well-grown Lily-of-the-Valley, many of the spikes having fourteen and fifteen bells each, was shown by Messrs. RIGG & FIXTER, The Nurseries, Caversham.

ROYAL METEOROLOGICAL.

JANUARY 19.—The annual general meeting of the Royal Meteorological Society was held on the above date, at the Institution of Civil Engineers, Great George Street, Westminster. The chair was taken by Mr. E. MAWLEY, President of the Society.

At the conclusion of the routine business, the President delivered an address on "Weather influences on farm and garden crops." He emphasised the close connection existing between meteorology and agriculture, observing that it had been found at the experimental farms at Rothamsted that the difference between a good and bad season in regard to weather might mean double the amount of produce. So intimate was the connection that, given the detailed weather records for any year, it would be almost possible to trace the effect of different seasons on different kinds of products. Great Britain was remarkably free from extreme changes of weather, which mainly accounted for the fact that such a large number of plants could be grown with success, and that the British Isles contained probably a larger number of indigenous species than any other country of the same extent. The effect of temperature on the growth of plants was very marked. Each kind of plant had its own requirements with regard to temperature both by day and night.

That fact should induce farmers in this country to grow only those crops which had been found to be best suited to the climate and temperature. The influence of rainfall on vegetation was second only to that of temperature. The fall of rain in these islands was more than sufficient for the wants of cereals, but it was very often too little, and seldom too much, for root-crops. Percolation and evaporation were also to be taken into consideration. The fertility of land was lowered when the drainage was excessive, owing to the loss of nitrogen. A deep fall of snow in the winter months should be welcomed by the farmer. It kept the ground comparatively steady in temperature, and afforded a protection against severe frost. The British Isles were undoubtedly better for grazing cattle than for raising Wheat, which required for complete success a greater mean summer temperature than was here afforded. Pasture-grass was the crop which could be grown with the greatest success. In concluding, the President referred in terms of high praise to the work which had been done for many years past on the experimental farms at Rothamsted, observing that the only thing wanted there was the establishment of a thoroughly equipped meteorological station.

ULSTER HORTICULTURAL.

JANUARY 13.—The Lord Mayor presided at the annual general meeting of the Ulster Horticultural Society, the efficient organisation under whose auspices the "Chrysanthemum show," as it is called, has rapidly grown to be a Belfast institution.

The hon. secretary had the gratifying report to submit that, in spite of the severe weather, last year's show was better attended at all times of both days than on any previous occasion. This was to be accounted for not only by the increasing popularity of the show, but on account of the extra interest evoked by the Victoria Jubilee Championship. The receipts from all sources amounted to £659 17s. 2d., and the expenditure reached £642 14s. 2d., leaving a balance of £17 3s., which, added to the balance brought forward shows a total of £72 1s. 5d., out of which the committee unanimously resolved to devote £30 to the Royal Victoria Hospital.

CHISWICK GARDENERS' MUTUAL IMPROVEMENT.

JANUARY 20.—The fortnightly meeting of the above Society was held in the Council Chamber at the Royal Horticultural Society's Gardens on the above date, when Mr. S. T. WRIGHT gave an address, choosing as his subject "Commercial Fruit Culture."

He commenced by dealing with the subjects of soil, situation, the best varieties of fruit to plant, packing, and marketing in general. Mr. Wright touched lightly upon fruit grown under glass, taking in their order Grapes, Peaches, Nectarines, Figs, with cultural notes on each.

A lengthy discussion followed the lecturer's most excellent address.

NATIONAL CHRYSANTHEMUM.

JANUARY 24.—A meeting of the General Committee was held on the above date at Anderton's Hotel, Fleet Street, Mr. T. W. SANDERS in the chair. A letter was read from Sir E. SANDERS, the President of the Society, promising to give the sum of twenty pounds as a President's special prize for twelve vases of Specimen blooms of Japanese Chrysanthemums—a communication which was received with great satisfaction. The competition in this class will take place at the November show, and the committee have added other prizes of £15, £10, and £5.

The Secretary brought up a report from the Rules Revision Sub-committee, who had dealt thoroughly with the rules, bringing them more into harmony with the action and requirements of the Society; and they were passed with a few alterations. The Secretary submitted a rough financial statement showing that the income of the Society for the year had reached the sum of nearly one thousand pounds; with a probable accession to the income of over one hundred pounds more before the close of the financial year. It was resolved that a meeting of the Special Classification Committee should be held on the 31st inst., and the annual general meeting on February 28; also that a smoking concert was being arranged for the benefit of the Reserve Fund to take place at Anderton's Hotel, on February 14. Three candidates for membership were elected, and the Dalkey (Ireland), and the Lowestoft Chrysanthemum Societies were admitted to affiliation. The usual vote of thanks was passed to the chairman for presiding.

CATALOGUES RECEIVED

HOOPER & CO., Central Avenue, Covent Garden, London, W.C.—Seeds.
FRED. SMITH & CO., Church Street, Woodbridge, Suffolk—Seeds, &c.
WM. WATT, Cupar and Perth, N.B.—Seeds, &c.
THOS. IMRIE & SONS, 123, High Street, Ayr.
DANIELS BROS., Royal Norfolk Seed Establishment, Norwich—Seeds and Plants, &c.
ALEX. CROSS & SONS (Limited), 19, Hope Street, Glasgow—Seeds, &c.

WM. RUMSEY, Joyning's Nursery, Waltham Cross, N.—Seeds, &c.
FRANK DICKS & CO., 66, Deansgate, Manchester—Seeds, &c.
J. LAMBERT & SÖHNE, Trier—Seeds.
VILMORIN-ANDRIEU & CO., 4, Quai de la Mégisserie, Paris—Seeds, Plants (including Strawberries), &c.
SUMNER BROS., 23, Digbeth, Birmingham—Seeds, &c.
WEBBER & DON, 114, Chambers Street, New York—Seeds.
H. DEVERILL, Banbury—Seeds and Plants.
JOHN FORBES, Hawick, Scotland—Seeds.
JOHN GREEN, Norfolk Nurseries, Dereham—Seeds and Plants.



[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named: and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.			
	Above (+) or below (−) the Mean for the week ending January 22.	ACCUMULATED.			More (+) or less (−) than Mean for the Week.	No. of Rainy Days since January 2, 1898.	Total Falls since Jan. 2, 1898.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 2, 1898.	
		Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since January 2, 1898.						Below 42° difference from Mean since January 2, 1898.
0	5 +	23	9 +	34 −	78	9 +	19	4 8	9	15
1	7 +	27	11 +	39 −	80	0 aver	12	1 2	9	11
2	8 +	32	6 +	54 −	94	3 −	3	0 8	8	10
3	7 +	27	6 +	30 −	94	4 −	7	0 7	2	9
4	8 +	29	4 +	35 −	95	5 −	6	0 6	9	14
5	7 +	27	0 +	41 −	101	5 −	6	0 5	12	15
6	8 +	31	0 +	47 −	83	2 −	16	3 1	10	10
7	7 +	29	0 +	48 −	90	3 −	12	2 4	8	13
8	8 +	43	0 +	56 −	69	5 −	10	1 6	11	18
9	7 +	35	0 +	44 −	70	4 −	13	1 8	5	9
10	8 +	60	0 +	65 −	63	3 −	11	2 4	12	15
•	8 +	51	0 +	59 −	33	7 −	11	0 7	30	34

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

THE following summary record of the weather throughout the British Islands for the week ending January 22, is furnished from the Meteorological Office:—

"The weather during this period was again unsettled in the extreme north and north-west, where frequent rains occurred, but elsewhere, although slight rain was experienced at times, it was mainly dry, with, however, a good deal of fog or mist. On the night of Friday considerable quantities of wet snow and cold rain fell in the north and east of Scotland."

"The temperature was much above the mean, the excess varying from 5° in 'Scotland, N.' to 7° or 8° in all other districts. The absolute maxima were very high for the time of year, especially in the extreme north, and were recorded during the middle of the week. They varied from 60° in 'Scotland, N.' (at Wick), and 59° in 'Scotland, E.' and the 'Midland Counties,' to 55° in 'England, E., S., S.W., and N.W.' The lowest of the minima were registered during the earlier part of the week, and varied from 25° in 'Scotland, E.' and 26° in 'England, S.W.' to 32° in 'Scotland, W.,' 34° in 'Ireland, N.,' and 37° in 'Ireland, S.,' and the 'Channel Islands.'"

"The Rainfall was generally in excess of the mean in 'Scotland, N.' and just equal to it in 'Scotland, E.'; but in all other districts there was a deficit. Over the eastern, central, and southern parts of England and the Channel Islands the fall was extremely slight."

"The Bright Sunshine was considerably less than the mean in all districts excepting the Channel Islands, where there was a large excess. The percentage of the possible duration ranged from 30 in the Channel Islands, 12 in 'England, S.' and 'Ireland, S.' and 11 in 'England, S.W.,' to 5 in 'Scotland, N.,' and to 2 in 'England, E.'"

NOTICES TO CORRESPONDENTS.

ADVANTAGE OF SHALLOW FRAMES: *W. T.* Before bees can commence work in supers, the temperature must be raised therein to about that prevailing in the brood-chamber; if, therefore, we give a big skep or a set of standard-sized frames, the bees may be unable to produce the desired temperature, in which case they remain crowded below, and swarm in due course. If instead of a big, and possibly badly-protected super, we give to skeps one of 6 inches in depth, or to movable comb-hives a set of shallow frames, and cover them well, the desired warmth is more likely to be quickly raised; and then the bees would undoubtedly enter with the object of building comb and storing honey. Then, again, shallow supers when full are not cumbersome to move about, or raise when putting the super-clearer in position; and, lastly, the greatest advantage of all, in my opinion, comes when the work of extracting commences, for the cappings are not only easily removed, but the honey is thrown out with less liability to damage the combs. *Expert.*

"ARUM LILIES MANURE:" *A. Reader.* Put into a 40-gallon cask or cistern 2 bushels of fresh horse-dung, stir it well about, and leave it to clear; and in about a week add 1 peck of fresh soot enclosed in a canvas bag, squeezing this a little every third day, so as to make its contents exude. Let the mixture get clear, and then use, say, 1 quart to 3 gallons of rain or soft water. This is a good manure for all kinds of soft-wooded plants. It may be made stronger for applying to Cannas, Brugmansias, and coarse-growing plants generally, by adding chicken's or pigeon's dung, at the rate of half a peck to the above quantities. If in summer-time bubbles generate on the surface, it is a symptom of fermentation, and the latter should be stayed by the addition of a small quantity of white vitriol. Of course, after the cask has been filled up twice, the contents should be turned out and a fresh lot made up. Instead of clear water, soap-suds may be used in filling up the cask. If an artificial manure is preferred, you should consult our advertising columns.

BEGONIAS GLOIRE DE LORRAINE AND GLOIRE DE SCEAUX: *Amateur.* When the flowering is past, afford the plants a few weeks' rest by keeping them moderately dry. Cut off the stems to within three or four joints (nodes) from the base, and gradually increase the moisture till the young growths from the nodes are fairly developed, then repot in a compost of loam, leaf-mould, and sand. Cuttings should be taken from the new growths only, and placed in a warm case. When these have rooted and been potted off, the temperature of a warm greenhouse is sufficient, or they should be placed in the warmest part of an ordinary greenhouse. These Begonias do not thrive out-of-doors here, but do well on the continent. *J. V. & Sons.*

BOOKS: *Enquirer.* Donald's Dictionary of Gardening, containing all the modern improvements, &c., was published in 1807. It is a quarto, in two volumes, with twenty-four plates. It is not in the Lindley Library. We do not know the value, but should assess it low.—*T. R.* *Cucumber Culture for Amateurs*, by W. G. May; *The Tomato: Its Culture and Uses*, by W. Iggulden; both obtainable at the Bazaar office, 171, Strand, W.C. We know of no manual on the cultivation of Aspidistra, and no gardener of even moderate experience should need one.—*A. M. D.* Scott's *Structural Botany*, 2 vols. (A. & C. Black); F. Darwin's *Elements of Botany* (Clay); *Hardy Ornamental Flowering Trees and Shrubs*, by A. D. Webster, published at the Gardening World Office, 1, Clement's Inn, W.C.

BRONZE OR METAL STATUES: "A. G." may possibly obtain these of Messrs. Singer & Sons, Frome, Somerset, who are workers in all this class of goods. *H. J. W.*

CLUBBING: *A. G. B.* Afford the land complete rest for two or three years from every kind of crop of the Brassica order, and afford it a dressing or two of gas-lime; and you will, by that means, starve out the slime fungus that is the cause of clubbing.

CONTINUOUS COVERED-WAY ESPALIERS: *H. H. R.* In theory, perhaps, you ought to be right, but in practice there is no reason why fruit-trees grown on arches should not produce as fine fruits, and in as great abundance, as free-standing espaliers, provided the trees have proper attention at root and top. Of course, only such varieties of Pears

and Plums should be grown as do not require the warmth afforded by a wall.

CORRECTION.—The *Kniphofia* described under "Kew Notes" last week is *K. primulina*.

CUCUMBERS ON NEW YEAR'S DAY: *X.* The first record we find is one to the effect that Mr. Fowler, gardener to Sir N. Gould at Stoke Newington, was the first to raise Cucumbers in autumn for fruiting about Christmas. He presented King George I. with a brace of full-grown ones on New Year's Day, 1721. See Johnson's *History of English Gardening* (1829), p. 153.

INDUCING EARLY SWARMS: *W. T.* Take the supers off the skeps if they are still on, and examine the combs of the stocks by inverting the hives and driving the bees down with smoke to see how the supply of food is lasting, as the weight of the hive now is not a reliable test when the combs contain so much brood and generally so little honey. Scrape the floor-boards, and then, having made the hives snug and clean, place over the feed-hole either a three or four-pound cake of soft candy, or give a pint of warm syrup once a week, until the flowers begin to bloom in quantity, but be sure not to give too much syrup, or you will retard instead of accelerate swarming. The candy would probably be ample, but to make sure give a pint of warm syrup at once, and then the cake of candy, with warm wraps in the shape of bags or pieces of carpet under the milk-pan. Leave the hive thus, and await the issue of swarms, which you may expect about the middle of May. *Expert.*

MINERAL INGREDIENTS OF SOILS: *B. G. S.* These vary very considerably. An ideal soil for farm purposes would consist of sand, 50 to 70 per cent.; clay, 20 to 30 per cent.; pulverised limestone, 5 to 10 per cent.; and humus, 5 to 10 per cent. Soils vary according to their origin, and the rocks of which they form the disintegrated remains; and siliceous, lime, alumina, iron, magnesia, and potash form the chemical composition of most of them, these substances being found in various proportions, in accordance with the basis of the soil.

NAMES OF FRUITS: *H. H.* 1, Cox's Pomona; 2, not known.—*Pear.* Black Worcester or Achan.—*E. S.* *Physalis Alkekegi*.—*B. G.* *Pear Winter Nelis*.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*C. P.* *Arbroath*, 4, *Grevillea alpina*, var.—*C. A. G.* *Deudrobium emulium*, a native of New South Wales.—*C. P.* 1, *Polypodium peltidum* (phymatodes); 2, *Adiantum Cunninghami*; 3, *Doodia media*; 4, appears to be *Pteris esculenta*, an ally of our common Bracken, but we fail to find spores on the withered specimens received; 5, *Adiantum capillus-veneris*; 6, *Lastrea decomposita*; 7, *Lastrea denticulata*; 8, *Polystichum vestitum*; 9, *Davallia canariensis*; 10, *Lastrea filix-mas polydactyla*; 11, *Platylopha falcatum*; 12, *Cyrtomium falcatum*. We have given the popular names so far as we can judge, some being merely immature barren fronds.—*S. L.* It is difficult to name Conifers from their shoots only. 1, Probably the Deodar; 2, *Pseudotsuga Douglasii*; 3, *Thuja dolabrata*; 4, *Cupressus Lawsoniana*, probably the form called *erecta viridis*; 5, *Thuja japonica* alias *Standishi*; 7, *Cryptomeria japonica elegans*; 8, *Cupressus* (*Retinospora* of gardens) *pisifera squarrosa*; 9, *Cupressus* (*Retinospora*) *plumosa*.—*H. H.* *Sedum carneum variegatum*.—*Alt. Lyddiard.* *Lonicera fragrantissima*.—*G. R. B.* 1, *Maranta picta*; 2, *Peperomia arifolia*; 3, *Hibiscus Cooperi*; 4, *Begonia argyrostigma*; 5, *Glechoma hederacea variegata* (variegated Ground Ivy).—*W. H. Divers.* 1, *Cytisus proliferus*; 2, *Iris unguicularis*; 3, *Crocus ancyrensis*.—*Zest.* The Fern is *Platylopha flexuosum*; the purple-leaved yellow flowered plant, *Gynura aurantiaca* of gardens. *Fred. F. Bailhache.* The silk-cotton is that of *Ochroma lagopus*, a soft-wooded Malvaceous tree, about 40 feet high, native of the West Indies and Central America. The silk-cotton or floss is of little or no commercial value, but is sometimes used for stuffing cushions. It cannot compete with "Kapok," from *Eriodendron anfractuosum*. *J. R. J.*—*Hamming.* *Garrya elliptica*.—*H. H.* *Darmstadt.* *Gomesa planifolia*.

PETALS OF CAMELLIAS 'DROPPING': *A. H.* This defect occurs when a plant is carrying an excessive number of blooms, and when the soil contains too much moisture, or the air of the house is very dry, or soil and air are dry. In fact, it is occasioned by anything that checks healthy development.

POSITION OF ARAUCARIA IMBRICATA SEED IN THE SEED-POT: *R.* The seeds should be buried with pointed end downwards, the thick end protruding from the soil about a quarter of an inch.

ROYAL HORTICULTURAL SOCIETY'S EXAMINATION SUBJECTS: *B. G. S.* Apply to the Secretary, the Rev. W. Wilks, 117, Victoria Street, S.W.

SELECT PEAS FOR SUCCESSION: *J. W.* *Chelsea Gem*, or *Veitch's Earliest Marrow*, the first being 1½ feet, and the latter 4 feet high. Let the next to follow be *Gradus*, or *William I.*, both about 3 feet. *Maincrop* Peas of good quality and prolific are *Advancer*, *Champion of England*, *Duke of Albany*, *Huntingdonian*, *Prodigy*, *Veitch's Perfection*. If exhibition varieties are wanted, there are *Telephone*, *Stratagem*, *Masterpiece*, and *Autocrat*. Peas for the latest sowing are *British Queen*, *Ne Plus Ultra*, *Sturdy*, and *Maclean's Best-of-All*. Peas should be sown from February to the end of June at fortnightly intervals, in flat broad drills, about 3 inches deep, and if these can be arranged in single or double rows in various parts of the garden, the produce will be greater, and the amount of land the crops occupy less than if a quarter be entirely devoted to Peas.

SPRING FLOWERS AT USE: *R. W. R.* The unusual mildness sufficiently accounts for the early flowering of the plants named.

SUITABLE PLANTS FOR BEES: *W. T.* To limit myself to one particular plant only, I should prefer *Arabis alba*. It is a valuable plant to grow for bees, blooming early in the spring, and continuing through the summer. Now is a good time to sow the seed, and when large enough, plant in permanent places 1 ft. apart each way, or sow in drills 1 ft. apart, where they are to remain and thin out, leaving each plant the above distance apart. I should advise anyone to plant more of a selection of bee-flowers, which will prove a great attraction for his bees, such as *Crocus*, *Arabis*, *Wallflower*, *Limnathus Douglasii*. These spring-blooming plants, I think, ought to be grown by every bee-keeper, they coming in bloom when the bee forage is scarce, and the bees certainly pay these plants great attention in the spring of the year. For the autumn, nothing beats *Anchusa*, "Chapman honey-plaut," and *Echinops Ritro*, the latter proving an ideal honey-producing plant. *Expert.*

UNITED HORTICULTURAL BENEFIT AND PROVIDENT INSTITUTION: *J. F., Hants.* The address of the Secretary of this Society has been repeatedly given in this column. However, we gladly repeat it as you have failed to notice it heretofore. It is *W. Collins*, 9, Martindale Road, Balham, S.W., and he will furnish you with the rules and other information you ask.

WATER BOUQUET: *W. P.* A lady correspondent, *E. B.*, kindly informs us that this kind of bouquet is "a Dorset specialty," and that a full description was given in *The Queen* for January 15 last (see also p. 73).

WORM-EATING SLUGS.—Correspondents from Southampton, Ealing, and elsewhere have kindly forwarded specimens.

COMMUNICATIONS RECEIVED.—*J. R.-C. N.*, Antibes.—*D. Guibéneuf*, Paris.—*G. H. K.-E. A.*, Geneva.—*J. Simpson*,—*P. F.-N. W.*, Vienna.—*W. B. H.-J. G.* (shortly).—*B. W. W.-R. P. B.-I. G. B.-R. N.-H. T. M.*—*B. M.-T. D. S.-H. H. D'Ombraim*.—*Goodlife*, Worthing.—*E. K.-R. S. & Co.*—*H. D.-A. J. L.-W. S.-A. D.*—*H. W. W.-J. J. W.*

PHOTOGRAPHS, SPECIMENS, ETC., RECEIVED.—*F. M. B.*, Brisbane.—*R. V. & Sons.*—*H. Cannell* (with thanks).

DIED.—On the 24th of January, at Hollycot, Cockington, after a long and severe illness, in his 28th year, WILLIAM THOMAS (WILLIE) MORRIS, the eldest and beloved son of W. H. Morris, of the Devon Rosery, Torquay. Funeral at 2.30 p.m. on Saturday.

CONTINUED LARGE INCREASE in the CIRCULATION of the "GARDENERS' CHRONICLE."

Important to Advertisers.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED,
and that it continues to increase weekly.
Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES of GARDENERS and GARDEN-LOVERS at home, that it has a specially large FOREIGN and COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.

(For Markets see p. xiv.)



THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 5, 1898.

PALMS IN THE LIVING-ROOM.

THIS manual of 128 pages,* lately published in Germany, supplies a long-felt want, and affords just the right sort of information that the layman desires who wishes to grow a few Palms in his drawing-room, living-room, window-ledge, table, or *jardinière*, and who is in great doubt as to the methods he should pursue in order to maintain his handsome and, perhaps, expensive Palms in health and beauty. The gardener by profession, if he have not had some years of experience in an extensive private garden, or in nurseries or botanical gardens, looks in vain in the ordinary manuals on the cultivation of plants.

The object the author had in view in writing was the extension of the circle of Palm fanciers in his own country; and some part of the work, particularly that applicable to the care of Palms grown in rooms heated by the close stoves in common use in Germany, is of lesser importance here; but that apart, the work embodies the results of close observation, and shows much cultural skill, as well as peculiar information and research on the part of the author. He tells us that about 1100 different forms of Palms are known, having their habitat between the tropics, a few extending beyond to the 41° of N. lat., as the *Chamærops* in Europe, and *Nannorops* in Asia to the 34°; in Sabal, in North America to the 36° N. lat.; *Kentia*, in New Zealand, to the 44° S. lat.; and *Jubæa*, in Chili, to the 37° S. lat. All of these subtropical species adapt themselves to room culture requiring no great degree of warmth, a not very moist air, and some of them at certain seasons a cooler temperature. Sunlight is a necessity to all Palms, and the lighter the position the better the plants thrive; therefore, the vicinity of a window is the best place for them. This position is, however, a dangerous one in the winter, when cold draughts penetrate the best-made windows, chilling the roots, the tenderest and most susceptible part of the plants. Methods, however, are indicated, by which this evil may in great measure be averted, and these are extremely simple. An even, regular temperature is very essential to success, and one good method of retaining the more tender species in health, is to cover them at night with a piece of wetted gauze, but not so that it comes into contact with the plant. Of course, that is described as being merely a makeshift, a glass-case being preferable. Other means are indicated for maintaining the roots in an equable medium by dropping the pot into a larger one, and filling the intervening space with soil or sawdust, or by enclosing the pots,

if small ones, in wooden or other cases, and filling in between with sawdust or earth, and, in the case of earth being used, planting therein *Selaginella* or *Nertera depressa*.

Of great importance is the wintering of Palms—and it is the more remarkable that the hardier the species the greater the difficulty, these needing in the winter a resting period, but which in the dwelling can only be afforded by a low temperature, and a frost-proof, well-lighted, unheated room, is rarely to be found in any house. And in ventilating a room during times of hard frost, the Palms must be removed, or covered with cloths. Moreover, the roots of these species are more liable to injury from a degree or two of frost than the leaves, and the pots should always be surrounded in the cold season with some non-conducting material, as felt, wood-wool, woollen-cloth, or wadding.

The warmer species need much less care, and these in the winter are quite at home in the living-room, and, if possible, near the window, protected against draughts, either hot or cold.

We are told the best season at which to buy our Palms, namely, late summer, when they are well established and the growth mature; and, above all things, to be shy of buying them from out of the florists' windows, where but little care is given them, and which may have the seeds of early death in them, though as yet invisible.

Much excellent matter is found on the rearing in apartments of diverse species of Palms from seed, and the varied manner in which the seed germinates. In the case of the Date-Palm and many others, after a shorter or longer time, on a certain part of the seed a minute white point appears, and grows to a considerable length downwards, whilst the fore-end swells somewhat. After this point has reached a certain length, a minute slit appears near its end, and out of this a new point appears, which takes an upward direction. Concurrently the first point gets longer and thinner and further downwards. When the upward-growing point has reached a length of 1 cent. it opens, and another point is extruded, which is somewhat larger, 2 to 3 cm. long, and from this shoot the first long and thin green leaf appears; meanwhile, from the swollen point of union, several roots have been emitted, and taken a downward direction. In *Areca*, *Acrocomia*, and *Sabal*, the downward striking point goes sideways into the earth, so that the base, as in *Phoenix*, &c., is equally deep in the earth. The various methods of germination offer numerous hints of value, and throw much light on the kind of cultivation needed by the plants, which our author does not fail to elaborate.

In the chapter on the Cultivation of Palms, good and faulty methods are contrasted, and reasons given, especial attention being directed to the so-called true and the false stilt-like roots of some species, and the treatment indicated for avoiding this evil when it is not inherent in the plant. The treatment of coiled roots, often found at the bottom of the pots and tubs, is, we believe, managed entirely empirically by English gardeners, who try to uncoil them, thus breaking them, and bringing the plant into a bad state of health from which there is no recovery, excepting strong bottom-heat be employed for several months afterwards. The roots of most species of Palms may be pruned back with a sharp knife if the plants be thus treated.

There is a capital chapter on soils, on the

crocking of pots and tubs—a most important matter. The forms of pot suitable to the growth of various species, choosing deep pots for those having stilt-like and long tap roots, and broad, shallow ones for surface-rooters. Potting receives full attention, and we are told that Palms must not have large shifts at a time, or be loosely potted; and that the surface of the soil should slope from the side to the centre, in order that the soil should not remain dry in the middle of the ball, and hinder the formation of new roots.

When should a Palm be afforded water? is with gardeners and amateurs an all-important query; and so far we have never seemed to have the right answer, because these have been mainly guesses at the reasons that should govern the application. The author says that the turgidity of the leaves and stem, which can readily be ascertained by the inability of the tips to be bent easily round the finger. If a plant be dry, the tips can be coiled round the finger with ease. The whole matter is made clear to the least botanically-instructed reader by a description of the construction of the stem and the leaves. A little wilting does no harm. Warm water should always be used for Palms kept in rooms and hothouses, as warm indeed as 68° Fahr.

A chapter is devoted to the manuring of Palms, and an analysis given of the ash of the *Livistonia chinensis*, from the work of Comte Kerchove de Denterghem; and another chapter is concerned with Palms in ill-health.

Rather more than half the book consists of brief descriptions of the more important genera of Palms and their varieties, a particularly useful section, not available in any but the more expensive works of Kerchove, Drude, and others. It is to be hoped that this book will be translated into English, as we have nothing but Seemann's book, now out of print; and the papers by Mr. W. Watson, scattered through more than one volume of the *Gardeners' Chronicle*.

NEW OR NOTEWORTHY PLANTS.

SOPHRONITIS GRANDIFLORA "SWINBURNE'S VARIETY."

THIS is a remarkable variety in every respect, and especially in the thick substance of its flowers and leaves, and in the extraordinary breadth of the sepals and petals, the latter being as nearly circular as possible.

There are two well-defined classes of *Sophronitis grandiflora*, the one with the comparatively long and narrow pseudo-bulbs and upright leaves; and the other with short pseudo-bulbs and broad, less ascending foliage. By the leaf sent with the flower, this would belong to the latter class, for it is broadly ovate, and nearly a quarter of an inch thick.

There is nothing abnormal about the flower sent, and yet at a cursory glance it might easily be taken for a scarlet tuberous *Begonia*. It measures nearly three inches across the petals, each of which are exactly one and a half inches broad. The petals are also much broader than in ordinary forms, and the lip larger and more conspicuous by reason of its clearly-defined scarlet lines on an orange-coloured ground. The sepals and petals are light scarlet, with a slight shade of carmine towards the edges, and in the veining which extends over their surface. It came in an importation made by Messrs. W. L. Lewis & Co., two years ago, and flowered with T. W. Swinburne, Esq., Corndean Hall, Winchcombe, who was so surprised by its peculiar flower that he remarked in his letter that it seemed to have been crossed with something else. *James O'Brien*.

* *Palmenzucht und Palmenpflege*, by Dr. Udo Dammer, Kustos des Königlichen Botanischen Gartens zu Berlin. Twenty-four illustrations. (Trowitzsch & Son, Frankfurt-on-the-Oder.) *The Propagation and Cultivation of Palms*.

ORCHID NOTES AND GLEANINGS.

VANDA TERES AT GUNNERSBURY PARK.

THESE plants have for so long a time been a theme of interest, and to many of astonishment, that it was but natural, being in the immediate neighbourhood a few days ago, that I should make a special effort to visit the place and see for myself how the plants were managed; and note the condition they were in, and what were the prospects for coming flower. Well, after careful inspection, I must confess I was more than satisfied; the condition of the plants was much better than anything I had anticipated. I remember visiting these gardens in Mr. Roberts' time, and then noting the general excellence of everything that came under my observation. I also remember that then this Vanda was passing through the experimental stages of special culture. It is experimental no longer, but the method then adopted has been continued ever since, so that now as far as my observation goes, the finest lot of Vanda teres is now to be met with at Gunnersbury Park. What there may be in other establishments near Tring I cannot say, as I have not visited them, but if they come in any way up to these now mentioned they must be fine indeed.

It would seem, judging by the stout growth and terete leaves, as well as by the large quantity of healthy roots, that this box-culture close to the end of a warm house where light and sun-heat can be secured, is just the place for them; placed as the plants are in crocks, charcoal, and moss, pressed only moderately firmly together, they can be, and are in the growing season freely syringed, but this latter operation is discontinued during the winter months. In the spring the numerous spikes push out, and in due time the glorious flowers will open, when such a sight will be presented as can scarcely be met with anywhere.

I congratulate Mr. Reynolds on his successful method of growing this plant, on the excellent condition in which I found everything about the place (fog taken into consideration), and beg to thank him for his kindness in conducting me through the whole of the glass-houses, and various parts of this beautiful park. Many things were worthy of special note, but a little later when growth is pushing and new foliage and flowers appear, a more satisfactory note may be made than early in January. *W. Swan, Bystock, Exmouth.*

CATTLEYA CANDIDA (Lehm.).

In giving this name to the species originally imported and distributed as *C. chocoensis*, Consul F. C. Lehmann gives us a reasonable cause for the change (*Gard. Chron.*, Oct. 26, 1896, p. 486): "This Cattleya does not grow in the Choco, but in the Cauca Valley, two quite different provinces;" and adds the following interesting particulars. "Cattleya candida is distributed over the Valley of the Cauca from Tulna down to the neighbourhood of Fredonia and Concordia in Antioquia, and is restricted to a region which extends from 600 to 1,100 metres above the sea-level. The climate of this region is very damp for some six months in the year, and very dry during three months in the time at which the plant flowers."

A beautiful example of it is sent by Joseph Broome, Esq., Sunny Hill, Llandudno, whose Cattleyas invariably develop flowers of fine quality, their excellence being probably in a great measure due to the genial air of the place. The sepals and petals are white, the latter very broad and crimped after the manner peculiar to the species. The lip is also white, with a faint purple glow in the tube, at the base of which are some dark rose lines merging into orange, the front tube being of a rich velvety ruby-red changing to violet, the whole having a broad, pure white, crimped margin. It is one of the most beautiful of the labiata section, and so variable that it is difficult to get two plants exactly alike. The flowers also are fragrant.

ONCIDIUM UNGUICULATUM.

Although the individual flowers of this species are not so showy as those of *O. tigrinum* of which some

authorities make it a variety, its habit of profuse flowering and the long duration of the blooms, make it of much decorative value, especially at the present season. A good example of it is sent by R. W. Rickards, Esq., The Priory, Usk, Monmouthshire. The sepals and petals are heavily barred with dark brown, and the lip, which differs from that of *O. tigrinum* in having the bright yellow-coloured front lobe on a long and narrow isthmus. The plant makes good growth, and flowers satisfactorily in an intermediate temperature. *J. O'B.*

KEW NOTES.

TREES AND SHRUBS IN FLOWER DURING LATE JANUARY.—The exceptional mildness of the winter is bringing many things into flower considerably in advance of their usual time. Whilst this makes the garden brighter than it otherwise would be in late January and early February, it has its disadvantages in hastening unduly the growth of many trees and shrubs, for which an English spring is, in any case, a perilous time. But like his *confrère* in agriculture, the gardener is difficult to please in regard to weather. To the owner of an extensive collection of foreign trees and shrubs, a mild winter is, after all, the greatest boon. His tenderer plants can start where they left off the previous autumn, and that means a great deal with such things as *Cassia japonica*, *Azalea* (more properly *Rhododendron*) *rhombica*, and many others of the same stamp, which, once they get hard and woody, are perfectly secure against frost, but which, in a small state, are apt to be cut back time after time almost to where they started the previous spring. Such things as those mentioned in the following notes, however, do not belong to that category; whatever risks their flowers may have to encounter, the plants themselves are proof against any English winter. How much our gardens owe to comparatively recent introductions is shown in even so short a list as that of January-flowering shrubs and trees. It is not so very long ago that no mention could have been made of the *Hamamelis* or *Prunus Davidiana*, which to-day occupy quite a prominent place. *W. J. B.*

HARDY PLANTS.

As evidence of the exceptional mildness of the weather experienced during the month of January, the following list of hardy plants now in flower in the open air, chiefly in the Rock Garden, at Kew, may be interesting:—*Aquilegia vulgaris*, *A. blanda*, *A. hepatica*, *Callianthemum anemonoides*, *Colchicum montanum*, *Corydalis rutefolia*, *Crocus biflorus*, *C. chrysanthus*, *C. Crewii*, *C. dalmaticus*, *C. etruscus*, *C. gargasicus*, *C. Imperati*, *C. Korolkowi*, *C. Oliveri*, *C. reticulatus*, *C. Sieberi*, *C. Suterianus*, *Cyclamen europeum*, *Eranthis hyemalis*, *Galanthus Alleni*, *G. Elwesii*, *G. Icaria*, *G. nivalis*, *Helleborus antiquorum*, *H. caucasicus*, *H. colchicus*, *H. cyclophyllus*, *H. viridis*, *Hacquetia epipactis*, *Iris bidora*, *I. persica*, *I. reticulata*, *I. Suwarowi*, *I. unguiculata* (stylosa), *Leucojum vernum*, *Merendera caucasia*, *Morisia hypogaea*, *Mandragora autumnalis*, *Narcissus minor*, *N. minimus*, *Ornithogalum montanum*, *Petasites albus*, *P. niveus*, *P. fragrans*, *P. spurius*, *Primula acutis*, *P. a. cœrulea*, *P. denticulata*, *Scilla bifolia*, *S. sibirica*, *Saxifraga ligulata*, *Sternbergia Fischeriana*. *W. J. B.*

THE WITCH-HAZELS.

Hamamelis arborea (see *Gardeners' Chronicle*, Feb. 7, 1874, fig. 47) is undoubtedly the best of the Witch-Hazels, and one of the most beautiful as well as the most interesting of our earliest-flowering trees. There is something in its appearance that strikes one as essentially Japanese. Is it because its miniature-tree-like habit, its crooked branches, and curious flowers (made up, as it were, of little strips of twisted gold leaf) suggest the fanciful efforts of the Japanese artist "on many a screen and fan?" *H. japonica* is not so good a plant; it does not flower so freely, nor are its blossoms of so rich a colour. The new variety, *Zuccariniana*, is more promising, the pale lemon-yellow of its flowers rendering it very

distinct. All these Witch-Hazels, being without leaf at flowering time, should, if possible, be associated with dark-leaved evergreens, like Holly.

RHODODENDRON DAURICUM.

Compared with the *Rhododendrons* that flower four months later, this is only a very modest plant, but producing, as it does, its bright, rosy-purple flowers in January and February, it has a great charm. It is represented by two forms, one deciduous, and the other more or less evergreen. Both have flat, saucer-shaped flowers, about $1\frac{1}{2}$ inch across, borne usually not more than two or three together. It is a native of Siberia, and has been described as "empurpled the mountain sides" when in flower.

RHODODENDRON ALTACLERENSE.

To cross a Himalayan plant (*R. arboreum*) with a North American one (*R. catawbiense*) specially forced into flower for the purpose, and thereby to add to hardy shrubs one that flowers almost as soon as mid-winter is past, was no mean achievement seventy years ago. Such was the origin of this *Rhododendron*, raised at Highclere in 1826. A group of it in The Dell at Kew has several trusses open, and many others bursting. The trusses are of medium size, and the flowers are rosy-crimson. I have never been able to satisfactorily distinguish between this and *R. Nobleanum*, raised in Waterer's nursery at Knapp Hill in 1832 from *R. arboreum*, crossed with *R. caucasicum*, although it is said to have darker flowers.

LONICERA FRAGRANTISSIMA AND L. STANDISHII.

Of the two winter-flowering Honeysuckles, *L. fragrantissima* is preferable. Both have white flowers, very freely produced and charmingly fragrant, but *L. fragrantissima* has the advantage of retaining most of its leaves. This season, in fact, it is almost purely evergreen. Its leaves differ from those of *L. Standishii* in being much less pubescent, and in being rhomboidal rather than ovate, as in *L. Standishii*. The latter flowers the earlier, and we had it in bloom at the beginning of November; but both are now at their best. Both are introductions of Robert Fortune, and well worth cultivating, but *L. fragrantissima* more especially.

PRUNUS DAVIDIANA.

Of the Peaches and Almonds this is the first to flower, and in a season so favourable as the present it is in bloom early in January. It is said by the Abbé David (by whom it was first sent to Europe over thirty years ago) to be common in the outskirts of Peking, and to be one of the most conspicuous trees there. Yet it has not been many years in general cultivation. It is a very beautiful tree if planted where it has a dark background, for its flowers are pure white, and very freely borne. The variety called *rubra*, whose flowers are tinged with pale rose, does not appear to bloom so well as the other.

ERICA MEDITERRANEA HYBRIDA.

noted in these pages a few weeks ago, is still bright with its spikes of rosy flowers, and judging by previous years will remain so for as a couple of months at least. It is now joined by *Erica carnea*—perhaps one of its parents—and the most charming of dwarf Heaths.

THE CORNELIAN CHERRY (CORNUS MAS).

although not fully out, is already becoming conspicuous with its yellow, bursting flower-buds. It is to February, however, rather than to January that it belongs.

CLEMATIS CALYCINA (or C. BALEARICA)

is in flower. It is evergreen, and its blossoms are creamy-white, irregularly spotted with reddish-purple. It is very pretty at this season, but cannot be included among the above as being quite hardy. It should have a wall or a sheltered corner. The same applies to *Garrya elliptica*, the male plant of which is very graceful now where it thrives well, with its long pendent catkins often 1 foot in length. *W. J. B.*

WITHANIA ORIGANIFOLIA = SALPICHOEA RHOMBOIDEUM.

I have received several inquiries as to the merits of a plant which has been called *Withania origanifolia*, and which is offered by continental nurserymen under the names of "Œufs de Coq" (Cocks'-eggs), and "La Muguet de Pampas." An account of it is given in *Le Potager d'un Curieux*, Paillex and Bois, 1885, p. 195, from which we learn that it is not a *Withania* but a *Salpichroa*, and that it is a native of Buenos Ayres, Montevideo, and Brazil. It was shown in

be sour, but palatable, especially when cooked and made into jam or jelly.

Plants of it are in cultivation at Kew, and I have seen it in several other collections around London.

COLEUS THYRSOIDEUS, Baker.

This is a new and handsome species of *Coleus* which was found in British Central Africa by Mr. Whyte, from whose specimens a few seeds were obtained, and from these plants have been raised at Kew which are now in flower. In habit, the plant is

ANOIGANTHUS BREVIFLORUS.

Although introduced into cultivation ten years ago, and figured in the *Gardeners' Chronicle* in 1889, and in the *Botanical Magazine*, t. 7072, this really handsome and easily-grown bulbous plant from the Cape is scarcely known outside botanical collections. It has flowered every year, in December to January at Kew since its introduction, and a good example may be seen now in the Cape-house. The bulbs and leaves are not unlike those of the *Belladonna Lily*; the scape is 15 inches high, stout, cylindrical, hollow, and it bears an umbel of from six to twelve flowers, which are tubular, 1½ inch long, and coloured bright yellow. Offsets are freely formed at the base of the old bulbs, and these flower when two or three years old. A 6-inch pot, containing five or six bulbs, potted in loam, and kept moist, except for a few weeks after the leaves fade, gives no trouble, and will produce flowers annually which are really valuable for the conservatory in mid-winter. The genus is monotypic, and is pretty widely distributed over South Africa.

HYMENOPHYLLUM RUFESCENS.

A fine mass of this filmy Fern is the most recent addition to the Kew collection of filmies, which is now exceptionally rich both as regards the number of species and their condition generally, the house built specially for them five years ago being evidently suited to their requirements. *H. rufescens* was first found and described by Kirk, in 1878, in the *Transactions of the New Zealand Institute*. According to Mr. Baker, it is nearest *H. subtilissimum* (*æuginosum*). The fronds are triangular, about 2 inches long, the segments rather wide and flat, and the whole frond is covered with a cob-web-like pubescence. Other rare species received at the same time from New Zealand are *H. Malingii*, in the way of the western *H. sericeum*, but with more rigid, thicker fronds. It is said to grow on the old trunks of *Libocedrus Doniana*, in Hawks' Bay district. *H. montanum*, a small crisped form of the widely distributed and very variable *H. javanicum*, and *Trichomanes Colensoi*. There are forty species of *Hymenophyllum*, and thirty-five of *Trichomanes* in the Kew collection now. W. W.



FIG. 29.—GALANTHUS CILICICUS (NATIVE SPECIMEN).

GALANTHUS CILICICUS.

MR. SIEHE, of Mersia, writes about this new *Galanthus* as follows: In 1895 I found, in the Cilician Taurus, about 560 metres above the sea-level, a Snowdrop in the first days of March; almost all flowers were over and already fructifying. Mr. J. G. Baker, at Kew, determined it as a new species, *Galanthus cilicicus* (see *Gardeners' Chronicle*, 1897, i., p. 214). To ascertain the full flowering season I paid a visit to the locality on December 10, and found amongst the rocks a great many in full flower, but a so many that were over. The flowers of the wild plants have the outer petals more than 3 cm. long, and more than 1 cm. broad. The flowers have a diameter of more than 6 cm. [A photo (fig. 29), in natural size, which Mr. Siehe sent to me shows flowers, the outer petals of which are 3·7 cm. long and 1·6 cm. broad, the inner petals 1·6 cm. long, 1·1 cm. broad. U. D.] Mr. Siehe says that the best way to have this plant in full flower at the beginning of November, is to place the bulbs closely together in a pot at the beginning of September. The later the bulbs are potted, the fewer are the flowers. The pots are brought into a cold lazy bed and lightly covered with earth. In the middle of October, when the bulbs are well rooted, the earth over the pots is taken away and frame-lights are laid over the bed, and slightly raised on sunny days. On the first days of November the pots are brought into a greenhouse or temperate-house to a sunny place, where they must have much fresh air and plenty of moisture. Certainly in the southern parts of England this *Galanthus* would flower in the open air as early as November. Mr. Siehe cultivates in his *hortus orientalis* at Mersia about 50,000 plants of it, which he will put into commerce this spring. Dr. Dammer, Gross Lichterfelde, Berlin.

fruit at Paris in 1877, and also a sample of jam made from the fruits.

The plant is described as a herbaceous perennial, with numerous creeping or scandent stems, small grey-green ovate leaves, and small white axillary flowers. The fruits are oblong or egg-shaped, about 1½ inch long, white when ripe, with a pine-apple-like fragrance; they have been likened to swallow's eggs.

In Paris it grew best when planted against a south wall, on which it was trained, and in the autumn was covered with fruits. These are said to

like an ordinary *Coleus*; the leaves have petioles 2 inches long, and a triangular, green coarsely toothed blade 2½ inches wide. The thyrsoid spike of flowers is terminal, erect, 9 inches long by 2 inches in width at the base, and the flowers are numerous, ½ inch long and coloured rich Gentian blue. Mr. Whyte found the plant on the Nyika Plateau at 6000 to 7000 ft. elevation, and he described it as "a very showy blue labiate, growing in damp situations." It is likely to prove a useful plant for the herbaceous border outside, and it may be also useful for the greenhouse in winter.

MARKET GARDENING.

WIRE TRELLIS.

THOSE trellises upon which to train the shoots and branches of Vines and Peaches, the bine of Melons and Cucumbers to, are easily and cheaply made; but we shall refer to this subject in due course, and proceed in our next contribution to make a few remarks on work of a more pressing nature.

RAISING STOCK TO BE AFTERWARDS PLANTED IN GLASS-HOUSES NOW BEING ERECTED.

It is very important that the raising of Vines, Tomatos, Melons, and Cucumbers, for planting in houses now in course of erection should be proceeded with forthwith, in order to secure some crops as early in the season as possible. The necessary number of *Vine-cups* of Gros Maroc, Muscat of Alexandria, Black Hamburgh, Black Alicante, and Gros Colmar should be inserted either singly in 3-inch pots or from nine to eighteen in 6-inch pots and pans properly crocked, and filled to the rims with sandy loam, surfaced with sand, and covered with fine soil to the thickness of about half-an-inch, and then plunged to the rims pretty close to the glass in a hotbed, assuming that there are not yet any heated houses or pits at command. The frames should be kept close, and the heat maintained by adding some fresh fermenting material round and up to the top of the frame every week or two, and covering the glass at night with mats or other material. The Vines will soon push into growth, and should be potted-off into large 60-sized pots as soon as they have made two or three leaves, using the same description of soil as before, and which should be warmed a little previously. Return the plants to the hotbed, water them and keep close as before, and subsequently shift them into larger pots, and afford more head room as occasion requires.

Melons and Cucumbers may be raised by the same means: potting one seed in each 3-inch pot half-filled with light rich soil, a little fibry soil being placed in each pot for drainage, top-dressing the plants as soon as they have made a couple of inches of growth. Earl's Favourite, Blenheim Orange, and Lockinge Hero, are three excellent varieties to grow, being of fine flavour, handsome in appearance, and attaining to good size under ordinary cultivation.

Tomato Seed may be sown thinly in shallow boxes, having some rough pieces of turfy loam placed over the holes in the bottom for drainage. Fill them nearly to the top with light rich mould, covering the seed lightly, and press seed and soil gently together with a piece of board. As good Tomato-seed comes up very quickly, care must be exercised to remove the box or boxes to a position pretty close to the glass, and where a night temperature of from 55° to 60° is maintained, so as to promote a sturdy growth in the plants from the beginning. With this end in view, pot-off the seedlings singly into 3-inch pots before they become crowded in the boxes, using a compost consisting of about four parts good sandy loam—or failing this the best available—and one of short manure; the whole being passed through a ½-inch mesh-sieve, and warmed by the aid of a few hot-bricks or other means before being brought in contact with the roots, pressing the soil gently about the latter in potting. Return the plants to the hot-bed, placing the pots on sifted coal-ashes near to the glass. Afford tepid water to settle the soil, keep the atmosphere close, and shade from sunshine for a few days until the roots have taken to the soil, when the shading must be dispensed with, and sufficient air admitted to insure a sturdy growth in the plants. As in the case of Vines, Melons, and Cucumbers, the number of plants to be raised must be determined according to the amount of space there will be for cultivating them. In each case, but especially in that of Tomatos, the plants must be planted out before they become "pot" or "root-bound." To prevent the plants receiving such a check, it may be necessary to shift some of them into pots one size larger. Should Tomatos sustain this kind of check, or one from excessive dryness at the roots, the first cluster of flowers,

representing perhaps 1 lb. of fruit, will fail to set. One pound of fruit lost from each of a thousand plants, and estimating the value of the fruit at 6d. per lb., would mean about £25 on the wrong side. Regina, Chemin Rouge, and Challenger are good all-round Tomatos to grow. They are early, very prolific, the fruits are of good size, shape, colour, and quality. H. W. W.

FOREIGN CORRESPONDENCE.

CANNAS.

It may not be out of place to draw attention again to the beautiful large-flowering dwarf Cannas, known as "Crozy's Cannas." I am sure that when their good qualities, and the very little care which their culture necessitates, are better known, they will meet with greater favour than at present, for anyone who can grow a Dahlia can as well grow a Canna. A difficulty sometimes experienced, is to keep them safely through the winter, and this is done best by storing the clumps under the benches of greenhouses, on boards raised an inch or so from the ground, to prevent any dampness arising from the bottom. They should be placed in greenhouses having a temperature of about 50° to 55° Fahr. (8° to 10° R.), and where little watering is done, so as not to suffer from drip from the benches. Pelargonium-houses, &c., are very suitable. For an amateur who has no greenhouse the best place is a cellar, where frost cannot enter. It is important not to shake the earth away from the clumps after digging them up, as this helps to keep the bulbs fresh and plump until the spring, protecting them against dry or cold currents of air; they should be placed under the benches very closely, but not in such a way as to bruise the outer bulbs.

The method of cultivating Cannas has often been explained in these pages. Bear in mind that Cannas are gross feeders; they are not very particular as to soil—preferring a somewhat heavier to a light one—so long as it is nourishing and well drained. During their period of growth they require plenty of water, and a few manual waterings will be found of service. At the same time, a Canna grown in a poorer soil, or in a pot, will stand the winter better than one grown in a heavily manured soil. The practice in Stuttgart is to dig out the bed where it is intended to plant the Canna for show, to the depth of about 1 foot or more, filling in with decayed stable-manure from hot-beds, &c., which it is intended to clear away, covering again with the soil previously dug out. This not only gives the bed a bold appearance until the Cannas have become established, but also affords good drainage. An ideal Canna should be of—(1) easy culture, and of a graceful and robust habit; (2) free-flowering, and with flowers (especially for groups) of a pure, intense colour, whilst for pot-culture delicate colours are very useful; (3), flower-spikes should be well above foliage; (4) flowers must be of such texture and durability as not to be easily injured by either rain or heat when planted in the open; (5) the spent-flowers should be self-shedding, and not cling to the stem until cleaned or shaken off.

In this particular, the useful variety Queen Charlotte fails. On the above-named lines, the hybridisation and selection of Cannas from hundreds of seedlings is annually carried on in the nursery of Mr. Wm. Pfitzer, Stuttgart, whence some of the best Canna novelties have gone out into the world. Mr. G. Ernst is also a specialist in Cannas; indeed, Stuttgart well deserves the name Canna City of Germany, given it by German gardeners, for in the summer months there are thousands of Cannas to be seen in bloom here in the public gardens and squares, and above all in the nurseries. Such fine varieties as Queen Charlotte, Reichskanzler Fürst Hohenlohe, Franz Buchner, &c., coming from Stuttgart, can well compete with any of the best in existence. In my next notes I should like to say a few words about the varieties cultivated here, and of such best sorts which from personal observation I can strongly recommend. H. R. W.

HIMALAYAN RHODODENDRONS.*

(Concluded from p. 66.)

OF the forty-three species of Himalayan Rhododendrons described by Sir J. D. Hooker, I shall pass under notice only the more important; and because of its general utility in the shrubbery, and the great variety it gives, I must assign foremost rank to—

Rhododendron arboreum.—The old scarlet arboreum is to be found in many of our Cornish gardens as trees thirty feet or more in height. At Carclew, the residence of Colonel Tremayne, grow some of the finest I have ever seen, one of them being probably the first planted out of doors in Great Britain. At Tremough we have arboreum in all its varieties as high bushes twenty-five to thirty feet high, the whites, of which album and cinnamomeum are the types, being objects of exceeding beauty. Of the scores of varieties and shades scattered over our grounds, the best are those whose soft purplish-pink flowers are delicately frilled at the edges. Such gigantic trusses as we grow must be the envy of many gentlemen whose grounds are not so well adapted for Rhododendron work.

Rhododendron argenteum, a synonym of grande, is one of the early flowering of the large-leaved section. Its trusses of flowers greatly resemble those of Falconeri, but they bloom much earlier, and are therefore by some more highly prized. Growing to a height of 40 feet in favoured situations, its massive leaves covered on their under surface with a beautiful silvery tomentum, argenteum is well worth growing for the sake of the effect of its foliage on the shrubbery in winter alone.

Rhododendron Aucklandi of gardens [R. Griffithianum of Wight], is a gem of the first water, named after the late Lord Auckland, Governor-General of India. In its native habitat it is mostly found at an elevation of 9,000 feet. The individual flowers are 5 inches across, and as there are generally from seven to nine to a truss, the appearance of a tree when in full bloom is such as does not easily lend itself to a description. Some of the varieties have pure white flowers with a delicate pink tinge, others are enriched with a claret-blotch in the throat. Of the several hybrids which owe their parentage to Aucklandi, few, if any, outstrip the original for general beauty, and I should be sorry if, in our hurry to increase varieties, we lost sight altogether of the type. The finest plant to be seen in Cornwall is at Killiow, the residence of J. C. Daubuz, Esq., height 10 feet, breadth about 10 feet.

Rhododendron barbatum is another magnificent species, readily distinguished by the barbs at the base of the leaf. Its flowers are of a dazzling scarlet, arranged in a very compact, globose truss, and when seen as we grow them at Tremough, adorning plants 20 and more feet high, the grandeur of oriental gardens becomes by comparison tame; and fairyland itself cannot be more dazzling than a group of these trees seen in full flower on a sunny day after a shower.

Rhododendron campylocarpum is a yellow flowering bush of from 4 to 6 feet high. Coming from altitudes ranging from 11,000 to 14,000 feet, it is perfectly hardy, and the wonder of it is that it has not commanded a greater favour. Sir J. D. Hooker considered it the most charming of all the Himalayan species.

Rhododendron campanulatum is a mauve flower, very delicately shaded in some varieties, and of sufficient distinction to be included in any collection.

Rhododendron ciliatum is a most useful species of dwarf habit, and flowering every year in abundant profusion, making it a suitable plant for the front row of the Rhododendron-bed.

Rhododendron cinnabarinum and *Roylcii* are two most beautiful kinds, with drooping flowers of peculiar habit, and are among the latest to flower.

Rhododendron Dalhousiae is found at an elevation of about 6,000 feet, growing as an epiphyte on Magnolia, Oak, and Laurel trees. We have grown it at Tremough for twenty years, but its tender constitu-

* A paper read at the Devon and Exeter Gardeners' Association on Jan. 12, by Richard Gill, Tremough, Penryn, Cornwall.

tion causes it to suffer under our more severe winters, the flowering buds being occasionally destroyed, and the young shoots cut back to the old wood.

Rhododendron Edgeworthi, another epiphyte, resembles the preceding in point of hardiness. Even in Cornwall it is not a safe subject for the open, but the powerful fragrance of its showy blooms entitles it to a place in the house during winter. It would be difficult to find two handsomer subjects than these.

Rhododendron Falconeri is the giant of the Himalayas, growing to a height of 40 feet, and confined for the most part to an altitude of 10,000 feet above sea-level. Apart from its flowers, it is a most desirable

Rhododendron Thomsoni will always hold a place among the leading crimson species and varieties. In addition to its deep blood-red corolla, it stands out very distinctly from its compatriots by virtue of the lax and graceful form of its corymb of from six to eight flowers. Of the hybrids raised from it, *Shilsoni* is far and away the best. It was obtained by the late Mr. Shilson by crossing *Thomsoni* with *barbatum*, and well perpetuates the memory of one of the keenest observers and growers of Sikkim *Rhododendrons*.

R. camelliæformis, *caudabrum*, *eleagnoides*, *fulgens*, *glaucum*, *lanatum*, *Maddenii*, *niveum*, *triflorum*, *virgatum*, and *Whitei*, are also species of Sikkim *Rhododendrons*.

treatment after the plants are fully established cannot fail to court starved plants, which yield little or no flower. With *Rhododendron* culture, as with every other human enterprise, thoroughness is the only road to success. The operator's only maxim should be, "What is worth doing at all is worth doing well." No royal path is open to him; his only passports are care, patience, and an observant mind. No greater fallacy can be imagined, no greater blunder perpetuated, than to suppose that, once placed in position, *Rhododendrons* are capable of looking after themselves. It must be distinctly understood, and cannot be too often or too strongly emphasised, that in our gardens the majority of them are being grown under very unnatural conditions, and the manifest duty of the cultivator is to study their requirements. To woo them into obedience, to see them, as travellers have seen them in their native wilds, arrayed in magnificent splendour, he must first acquaint himself with the conditions under which they thrive there, and then, as far as is possible, become, not a slavish, but a judicious imitator of Nature.

CYCLAMEN CILICICUM.

A SPECIES which grows in vegetable soil in shady parts of the lower hills, as well as in the upper forest region of the Cilician Taurus up to 2100 metres above sea-level, and in exposed sunny situations. As the illustration (fig. 30), after a photograph taken by M. Siehe, of Mersina, of the plant as found growing in the original locality, shows, the plant is a very profuse flowerer, and it is certainly quite hardy. *U. D.*

DO ORCHIDS DEGENERATE?

(Concluded from p. 67.)

THAT pretty little plant, *Cœlogyne corrugata*, first introduced some thirty years ago, is, or was not so long ago, consigned to the ranks of the unmanageables. I remember a few years ago, while visiting the Orchid-house at Kew, coming upon a large clump of this plant in a pot. I was bound to believe the label, but save for that should have passed the plant by without notice, it was so out of character and so totally different to the plants I had so often seen and admired on the Neilgherry mountains. The leaves were at least three times the length of those of the wild plants, and much more luxuriant in growth. I enquired of the young man in charge, if the plant had ever flowered, the reply was, "I have known that plant for the past four years, and during that time it has shown no signs of flowering." Its appearance, to my mind, betrayed the fact that it had long been kept in a constant state of excited growth, so different from the conditions under which it is found on its native hills, where during the long dry months of rest, it receives nothing from nature but the refreshing misty vapours to keep it from "drying off."

Take another example outside the Orchid world, viz., *Impatiens Jerdonii*, an exquisite plant when seen in a wild state. It was introduced, I believe, about the year 1852, and after all these years how rarely one sees it flowered in this country with anything like an approach to its capabilities.

It is frequently grown in pots in peat and other substances, and kept in a growing state all the year round, whereas on its native uplands it grows on the thick branches of stunted trees, and is exposed to a yearly drought, and consequent rest of from four to six months, during which the gouty stems—which have displayed and shed their glory during October—shrivel and "dry off" so completely as to make it difficult for one to imagine how Nature can revivify such shrunk and sapless things.



FIG. 30.—CYCLAMEN CILICICUM.

(About $\frac{1}{2}$ nat. size.)

shrubby plant, its noble foliage forming an agreeable foil to other kinds of vegetation. No *Rhododendron*-garden can be said to be complete which does not find liberal room for *Falconeri*; and, what is still more in its favour, it is rarely, if ever, injured by frost with us. Many gardens in Cornwall grow it to nearly 20 feet in height.

Rhododendron cinnamomum, although an undoubted variety of *Falconeri*, is sufficiently distinct from it to be included in any collection.

Rhododendron Hodgsoni is another of the large-foliage species which cannot be omitted. In its native home, like *Falconeri*, it has the remarkable peculiarity of seeking the company of *Abies Webbiana*.

The number of hybrids raised from the aforementioned species are legion, but in a paper purporting to deal with species only, no place can be found for them.

A CONCLUDING HINT.

No one has a right to expect his *Rhododendrons* to give satisfaction, or to pass muster with the specialist, who is not devoted heart and soul to their welfare. Whether the start is made with seed, layers, buds, or grafts, it is essential that the work be carried out systematically, and not in that half-hearted, spasmodic manner which is all too frequent. Neglect at any one of the more critical periods of the life of the plants is bound to result in ill-kempt and unlovely specimens; while a happy-go-lucky sort of

One more example of an "unmanageable," and I have done. The Neilgherry Lily, *Lilium neilgherrense*. Although the whole of the mountain ranges of southern India have been ransacked for the sake of the bulbs of this charming Lily for importation into England, yet it is acknowledged to be extremely difficult to grow and bloom for any length of time; in fact, by many it has been relegated to the list of "unmanageables." In its native habitat I have hardly ever seen it growing in any other position, save from the clefts and fissures of rocks, where leaf-mould or vegetable matter had accumulated, and where, during the growing and flowering season, water trickled. As the dry season advances, the wet mould is converted into black dust, the stem of the plant decays, and the bulb is left in its dry and dusty bed till the following spring. Do any of the growers of this bulb imitate these conditions? I may add that this plant may be added to the list of those that stand in imminent peril of total extinction.

With reference to the Orchid family, it is a grand thing to know that Nature will allow us to cull one of her crowning treasures in these plants, and bring them from the ends of the earth to our very doors for the display of their exquisite beauty and rich fragrance; but it is assuredly a sorry thought that instead of moving cautiously, and step by step, in the importation, cultivation, and preservation of this noble order, we have recklessly, wilfully, ignorantly, for the love of gain, and regardless of the ultimate fate of tens of thousands of these plants, torn them from their native homes and brought them to our markets to be sold in batches and bundles like ordinary nursery-stock, with no thought of their ultimate fate, and thus contributing in no small degree to the total extinction of many of the most lovely species. Had a more sensible and intelligent course been pursued from the beginning, there never would have, I venture to think, existed the necessity for asking the question, "Do Orchids degenerate?" J. Lowrie.

VEGETABLES.

EARLY CARROTS.

Those who are not provided with hot-bed frames, and many amateurs are in that condition, may still have the sweet, tender young Carrot some few weeks earlier than the roots can be obtained from ordinary sowings made on "warm borders." Let an excavation be dug out 1½ foot deep in some warm corner of the garden, reserving enough of the clean upper layer of soil for sowing the seed in, and filling the excavated space with prepared stable-manure, or the same mixed with tree-leaves made firm by a slight trampling with the feet. When the heat has risen to 65°, and it is not likely to get warmer, cover with the mould set aside for the purpose, surrounding the bed with deep boards, or banking it up with the remainder of the mould; make firm, and sow thinly broadcast the Carrot-seed, mixed with moist sand, and cover lightly with mould. Put some wooden hoops, or bend some Bean-sticks, over the bed, and over these put garden-mats. When the plants appear, remove the mats by day, when it is fine weather, and always cover up at night. The crop will be ready for use in April and May. Good varieties for this sowing are Early Scarlet Dutch Horn, the English Scarlet Horn, and the Early Scarlet French Short Horn, with almost globular roots. Care must be taken that the soil does not get very dry before water is afforded, but this is not so likely to occur as with frame culture. On the other hand, drenching rains and showers of snow, sleet, and hail, should be guarded against, and for this purpose oiled canvas or calico may be put over the mats. For sowing in the open to succeed the hot-bed produce, Early Nantes and Early Scarlet Short Horn are excellent.

CELERIAC.

Most persons like this vegetable who have partaken of it as a salad-root cooked and prepared like Beet-root, or stewed in good soup or stock; plain boiled, it is unpalatable as a vegetable dish. Those who would like to try it should include it in their seed order, although the middle of March is soon enough to sow the seeds, which should be done under a hand-glass, or in a seed-pan in a cold frame, the plants being reared hardily, and planted out in March in rich soil. It is more convenient, in order to get at the plants, and to hoe and hand-weed the soil, to plant Celeriac on the flat in beds 4 feet wide, with alleys between of 1½ to 2 feet. Each plant should stand 15 inches from its neighbour, and the plantation receive abundance of water in hot weather, failing copious rains; and to allow the air to circulate freely amongst the plants, the lowermost leaves, which are usually undersized, and of no use to the plant, and the suckers, if any, should be early removed. The roots may be taken up and stored after removing the chief part of the foliage, but reserving the heart-leaves. They keep till late in the spring if planted in damp sand or mould in a cellar or shed that has some amount of sunlight; and roots can usually be had in good condition long after blanched Celery has bolted or decayed. It may be mentioned that excessive application of either solid or liquid manure results in coarse, very large, hollow, or split tubers, and is therefore inadvisable. A root from 4 to 5 inches in diameter is large enough for all purposes.

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. WHITE Orchid Grower, Burford, Dorking.

In the Cool-house the handsome *Odontoglossum coronarium* var. *miniaturum* is producing its flower-spikes, and is a species which grows very freely when suspended to the roof on the lightest side of the house, with its foliage almost touching the glass, and abundantly watered at all seasons. In the same house plants of *Sophranitis grandiflora* produce a brilliant effect, especially when arranged with flowering plants of *Odontoglossum crispum*. This dwarf-growing species will need plenty of root-moisture until the growths are completed, taking care, when watering the plant, not to wet the flowers. *Sophranitis violacea* thrives best when grown in the coolest part of the intermediate-house. Plants of *Cymbidium Devonianum* showing for bloom must have their spikes carefully guided over the edge of the pot, as recommended for *Angraecum pellucidum*.

Calanthes.—All of the first-flowering varieties having now passed out of bloom, their short resting season should commence, at which time the plants may be put on a dry shelf in the warmest house in full sunlight, in order to mature the pseudo-bulbs perfectly. Water must not be afforded during rest. The Regnier section of *Calanthes* now begin to open their flowers. The flowers of *C. Regnierii*, *C. nivalis*, *C. Sanderiana*, *C. Williamsii*, and *C. Stevensii*, owing to their upward inclination, cannot be observed to advantage when stood upon the ordinary stage, and it is better to arrange them on the floor in one part of the house, and if plants of *Cyperus alternifolius* are used as a background, and Maidenhair Fern is intermixed, the long, arching spikes have a pretty effect. Where cut-blooms are in request, *Calanthes* are very useful plants, as the spikes last about three weeks in water if kept in a cool-room.

Mexican-house.—The plants of *Odontoglossum citrosimum* now starting into growth should not be excited too much, or they may grow too quickly, and flowering be abortive; rather keep the plants at the cooler part of the house, affording not any water at the root till the flower-spikes show themselves, when abundance of water at the root, and a moist atmosphere, should be afforded. As soon as a young flower-spike is seen pushing up in the centre of a new growth, a piece of wadding should be wrapped round it as a protection against slugs and woodlice. In this house *Laelia autumnalis*, *L. albida*, *L. Gouldiana*, *L. Marriotiana*, *L. anceps*, and its varieties, are usually cultivated; and those plants that have passed out of bloom recently should be kept on the dry side, and soon bunches of new roots will be seen to push out from the base of the last-made pseudo-bulbs. Before, however, these make any progress, sphagnum-moss should be afforded such as require any. Strong, well-rooted specimens, in sufficiently large pots, should not be disturbed unless the compost is sour

and decayed, in which case it must be carefully extracted, and the dirt washed out from amongst the roots. After a plant thus treated has become dry, let the drainage be re-arranged, and the roots be laid in fresh materials, care being taken not to disturb the roots unnecessarily, or a considerable time will elapse before they regain sufficient strength to bloom satisfactorily. Let the plants be well raised above the rim of the pot or basket, and squeeze the materials together pretty firmly. The latter may consist of fibry-peat and sphagnum-moss, and a few thick crocks. After re-potting or top-dressing, much care in affording water is needed, the roots and rhizomes being liable to decay, especially freshly imported pieces. At the first it will suffice to moisten the compost slightly with a fine-rose watering-can, wetting the bulbs or rhizomes, and to damp the stage between the pots on fine afternoons; the night temperature being kept at about 55°, and by day as high as the sun-heat will raise it, at the same time air should be admitted carefully. On the appearance of new growth, the amount of heat, ventilation, root-moisture, and aerial humidity may be increased.

Miltonia vexillaria.—Any of these plants that were not re-potted last autumn, or those requiring to be broken up, may be attended to at this season. Some growers report the whole stock of *M. vexillaria* at this season, and, as I am told, with very good results.

Blinds or Shading.—Those on the *Odontoglossum*-houses should at once be put up, as it may happen that in a week or so the sun will be too powerful for the plants during the middle hours of the day. During mild weather the *Odontoglossum*s may be afforded plenty of air when the temperature outside stands at 50°, top and bottom ventilators being opened; but when the thermometer shows 45° out-of-doors, air should be admitted by opening the lower ventilators only, and on the opposite side to that from which the wind comes. *Odontoglossum*s being generally in full growth, and many of them sending up flower-spikes, the nearer the night temperature is kept to 50° the better it will be for the plants.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Coleus Verschaffeltii, or any other of the dark-foliage variety, known as bedding *Coleus*, should now be propagated, making first sure that no green or white aphids infest them. As soon as the cuttings are rooted and potted-off, pinch out the point of the stem, and do not afford the plants later in the year more heat than will just keep them growing steadily and sturdily.

The Rose Garden.—Many of the plants have begun to grow, and the buds of newly-planted Roses are very forward; it will therefore be prudent to have a quantity of bracken, long litter, and Fir-branches at hand for use in case of sharp frosts occurring, paying especial attention to the more tender Tea Roses that may be situated at a distance from the protective influence of buildings, walls, and tall trees.

Tuberous-rooted Begonias.—Seeds should be sown this month if the plants are intended for bedding-out in June next. The soil found very suitable for this purpose consists of three parts leaf-soil to one of loam, with a fair quantity of sharp, clean sand, the pans being very well drained, and the soil in a proper degree of moisture—that is, neither very damp nor dry. The seed, which is very small, needs great care in sowing it evenly and regularly over the surface of the mould, and in covering it lightly with very fine soil. The seed-pans should be plunged in a brisk bottom-heat, in order to hasten its germination, and much attention is needed in affording water, so as not to disturb the seeds. The seedlings as they appear should be lifted with a pointed bit of wood, and pricked out round the sides of well-drained pans, filled with the same kind of soil as that in the seed-pans, potting them singly into small 60's as they become large enough, and taking care that the drainage is sufficient, *Begonias* being much injured by a stagnant, over-wet soil. As the plants get bigger, plant them out into frames, or repot them. The soil in which the plants are to grow during the summer should be liberally dressed with well-rotted leaf-soil, and deeply dug previously to being planted.

General Work.—The mild weather has permitted alterations, ground-work, gravelling, turfing, &c., to be carried on without much interruption. If tree or shrub planting, excepting that of Hollies, be uncompleted, let it be finished, as far as circumstances will allow. Get all the vacant flower-beds and borders manured and dug forthwith; and proceed

with cutting the turf-edgings to walks and beds, maintaining the true lines of the same as intended by the designer.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Vines: Early-house.—The number of bunches to be left for a crop should be decided forthwith, and the thinning of the berries carried out when these are of the size of Radish-seed. Vine-rods which have a spread of foliage on either side of about 4 feet may carry one bunch of 1 lb. weight to each foot of rod, or in the case of very strong Vines, a little more than this. In thinning a bunch of Grapes, the thinner should use a pair of proper Grapo-scissors that are sharp towards the points, and a small piece of stick or Birch-twist with a forked tip in the left hand, to steady the bunch while it is being operated upon; and he must take great care not to bruise or prick the berries left in the bunch, or rub them with the hand, or let them touch his hair. Early Grapes are not expected to be so large as late ones, and this fact should be borne in mind by the thinner, his aim being closeness and compactness of bunch, so that a bunch when cut and laid on a dish will retain its shape, and not fall all abroad. In order to have this desirable form, the berries should be close together without being crowded. In every case the lower tip of the bunch should be taken in hand first, beginning by cutting out the smaller and unfertilised berries, always proceeding in an upward direction, and going over it a second time, and thus reduce the berries required as much as may be, at the same time leaving them as evenly distributed over the bunch as possible. The berries on the four shoulders of the bunch having nothing to crowd, should be left in larger numbers than elsewhere, taking care to leave no seedless ones. It is good practice to go over the Vines once or twice a week, and remove and stop all lateral shoots not wanted for fruit-carrying another year. The inside border, if found but slightly moist on examination, must be afforded a thorough application of tepid manure-water, or a top-dressing with artificial or other manure before affording clear warm water. If the heat in the fermenting materials covering the outside border has declined, add enough fresh well-prepared materials in a heated condition, remaking the mass throughout. The same range of temperatures as those recommended in last week's Calendar should be maintained, and see that the ventilation is carefully carried out, so that it will not render the foliage flabby and thin by too little air being admitted on favourable days, or it will be very liable to get scorched later on in the year. The amount of damping-down that is done should vary in accordance with the weather and the amount of fire-heat that is employed, once a day being enough on days that are mild and damp, and in sunny or frosty weather four times may not be too many. Be careful, if you would avoid rusted berries, not to throw water over the hot-water pipes when these are in a heated state.

Potted Vines.—When the Vines are of medium strength, six bunches are enough for a crop, but strong ones may carry eight bunches. If the Vines are afforded bottom-heat by means of dung and leaves, this should not exceed 75°. If declining, add some small quantity of fresh materials. The same kind of general treatment is required for potted Vines as for permanent Vines, except in affording water, which must be in accordance with requirements; and it may be necessary to examine the state of the soil every day, as it must never be allowed to become quite dry, nor, on the other hand, should it be kept continually moist. Manure-water may be afforded once or twice a week when the plants are in active growth, and roots have appeared on the surface of the soil.

THE KITCHEN GARDEN.

By J. W. McHARRIE, Gardener, Strathfieldsaye, Hants.

Tomatos.—If seeds were sown as advised, the seedlings will now require to be transferred to small pots, using mellow loam and leaf-mould in equal parts, with a small quantity of rotten manure and coarse sand, and place them in a position close up to the glass in a temperature of 60° to 65°. Shade them from the sun for a few days, and afford but a small amount of water for a week or so after potting; when the days are fine ventilate them a little in order to strengthen the growth.

Celery.—A small quantity of seed of Standard Bearer, or any white variety, may now be sown in finely-sifted rich soil, the seeds slightly covered with soil, and the pans or boxes placed in a structure

having a temperature of 50°. There is a pretty constant demand in the kitchen for unbleached Celery during early summer for flavouring purposes.

Shallots, Garlic, and Chives.—These allied members of the Onion family may now be divided and planted. In the case of the first two, let the soil be forked over, levelled, and then made firm, as for Onion sowing, and draw drills at 1 foot apart, $\frac{1}{2}$ inch deep, press the cloves slightly into the soil at the bottom of the drills at 6 inches apart, then with a hoe or small rake draw the soil up to and almost over them. Chives may be divided into small bundles and planted in rows at 1 foot apart on the flat. The plant forms a neat line 1 foot retired from the box or other edging. The plant should go as deeply into the soil as it was before it was removed.

Tarragon is early on the move, and new plantations may be made by digging up the roots and dividing and planting the divisions on a fresh piece of ground. It will stand a good deal of shade under fruit-trees, and should not be much manured.

Spear and Peppermint may be similarly treated.

Digging Land.—In trenching any but the oldest kitchen gardens, or unusually deep soils, the subsoil should not be brought to the surface in any but the smallest quantity, or the fertility of the land will be impaired for several years. The following is a good method of trenching: having taken two good crops off the surface soil, trench the land three spits deep if it will bear it, by which the top and the bottom spits are reversed, the middle spit of soil remaining in the middle, then take three crops off the surface soil, digging it only one spit deep; and having done this trench it two spits. The top spit has now become the middle one, and the middle the top; again take two crops, and then trench three spits deep, by which procedure that that was the middle spit becomes the bottom one, and the bottom, which was the surface-soil at the beginning of the series, after having laid for four years untouched, comes to the surface. By this means good crops of roots and vegetables are obtained without annual dressings of animal and vegetable manures, and air and water have ready access to the soil.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Adiantum cuneatum.—Those plants from which the more useful fronds have been cut, and have been kept somewhat drier at the roots, may now be repotted, some of the larger plants may be split up for stock, although plants from spores are preferable, as growing with more freedom. Plants which are in good health and have not stood any great length of time in the same pots, perhaps do not require a shift, and providing the drainage is in good order, they will make a satisfactory growth with the aid of mild manure-water afforded when growing. As a potting compost for Adiantums, use fibrous loam of good quality two-thirds, and leaf-mould one-third, and sand and charcoal in quantities sufficient to keep the soil porous and sweet, drainage being an essential point. When shaking out the plants, a pointed stick should be employed to loosen the matted roots and remove the soil. Before repotting, give them a dusting with sand, and take care that the soil is pushed down the bottom betwixt the ball and the side of the pot. Place the repotted plants in a brisk, moist heat, and afford water sparingly till growth has freely begun. As other plants become shabby-looking, cut the fronds over, keep the soil somewhat dry for a time, and then treat in the manner I have described.

Pteris serrulata.—Young plants of the type and the crested forms, if growing in small pots, may be shifted into larger pots and placed in a brisk heat, when they will rapidly make decorative specimens of a useful size. Spores may be sown on sterilised peat in order to keep up the stock of plants, throwing away the large old plants when no longer of decorative use.

Nephrolepis exaltata.—Where large quantities of Fern fronds are needed for cutting, this useful Fern might be extensively grown with advantage, and young pieces are readily obtainable from the sides of baskets, from the rockwork in the fernery, or by breaking up the old plants. There is no difficulty where a small stock exists in increasing it. Divided plants may be placed for recovery in an early vinery, or similar house in which a moderate degree of warmth is maintained.

Asparagus plumosus, &c.—These plants need timely attention, as growth recommences early in the

year. *A. plumosus* and *A. p. nanus*, two of the more useful varieties for decoration or for cutting, which are much cut over, may be repotted, using 6-inch pots for ordinary purposes; but if specimens are required, larger pots are necessary. In order to increase the stocks of these plants, the roots may be divided, or cuttings taken off the main stems, each with a leaf, may be inserted singly in thumbs in a sandy soil, and after affording water, place the cuttings under a hand-glass in a brisk bottom-heat. From those cuttings inserted at this date, plants of a useful size and in 4 or 5-inch pots may be obtained by the beginning of the autumn. Bare parts of the back-walls of vineries, stoves, or any position which will permit the growths to be trained on wires or strings, may be covered by setting out old plants of *A. plumosus* or *A. tenuissimus*, the former being the more useful variety. *A. decumbens* of gardens, when grown in a wire basket, makes an elegant plant for hanging in the conservatory or fernery. The stocks of these plants may be increased by division of the roots, and good lumpy pieces of fibrous loam, leaf mould, and sand, form a suitable compost to use; a layer of moss being used to cover the sides of the basket. *A. racemosus* is a variety that is found of use for affording foliage for cutting, or as a decorative plant.

Myrsiphyllum asparagoides, growing in pots and which is denuded of most of its growths, may be repotted or divided forthwith if an increase of stock be required; good results are also obtained by sowing seed early in this month in brisk heat, and pricking off the seedlings into thumbs when large enough to handle, and finally affording them a shift into 5 or 6 inch pots. A similar position and treatment are advised for this plant as for *Asparagus plumosus*. If planted out, it is advisable to lift them in alternate years, and reduce the size of the plant somewhat before replanting; add a little fresh soil, not too rich, or the growth will become coarse and less well adapted for decorative purposes.

THE HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Digging.—All fruit-tree borders should be dug without delay, in order that the rain and snow may penetrate the soil without hindrance before dry weather commences. This is especially necessary with wall-tree borders which get trodden very hard. If the trees will be benefited by manuring, afford rich farmyard dung in a decayed state before beginning to dig. If the pruning and nailing of the trees cannot be finished before digging the border, broad planks or wooden trellises should be used by the men engaged in these operations.

Bigarreau and Duke Cherries.—Those wall-trees which were properly pruned in the summer will need but little more at this season, and it will suffice to shorten the points of those branches that were laid in at their full length by one-third, and in this manner encourage the formation of fruiting spurs. The foliage of these varieties of the Cherry is large, and therefore the branches and shoots should not be less than 4 inches apart. Young shoots that were cut back somewhat in the summer in order to form fruit-spurs must be still further reduced to 2 inches in length; and spurs which have got very long should also be shortened. Let the dead leaves and other rubbish be cleared out from behind the branches, as this offers hiding-places for aphides and other pests. Any parts of a tree affected with gumming should be cleaned and dried with a hot iron, and then covered with grafting-wax or Mastic l'homme Lefort. This disease is sometimes fatal to Cherry-trees, and great care should be exercised so as not to bruise the bark when nailing. Standard Cherry-trees need but little pruning, all that is necessary being the removal of crossing branches; and in the case of young trees, the shortening of the main branches to 9 inches in length until a good foundation for the head is obtained, and five to seven shoots of equal strength are sufficient for this purpose. The weaker shoots should be shortened to 2 inches. Cherry-bushes that have attained to full size will require that their young shoots be shortened to 2 inches, and the long spurs attended to. It is better to keep these bushes of a convenient size for netting than to let them become large. In places where Cherries fail to stone, and they fall from the trees at an early period, a heavy dressing of lime-rubbish or of slaked lime should now be forked into the borders, but lime made of magnesian limestone must not be used; and finely broken chalk, if it can be obtained, is better than anything else.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, FEB. 8 { Royal Hort. Society's Committee's and Annual Meeting.
SATURDAY, FEB. 12 { Royal Botanic Society—General Meeting.

SALES.

TUESDAY, FEB. 8 { Carnations, Perennials, Continental Plants, &c., at Protheroe & Morris' Rooms.
WEDNESDAY, FEB. 9 { Japanese Lilies, Tuberoses, Continental Plants, Roses, Begonias, Gladioli, &c., at Protheroe & Morris' Rooms.
THURSDAY, FEB. 10 { Roses, Fruit Trees, Shrubs, Bulbs, Border Plants, at Mr. Stevens' Rooms.
FRIDAY, FEB. 11 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—39°2'.

ACTUAL TEMPERATURES:—

LONDON.—February 2 (6 P.M.): Max., 53°; Min., 42°.
PROVINCES.—February 2 (6 P.M.): Max., 45°, south-west counties; Min., 35°, north-east Scotland.
Weather colder; strong wind.

A "mixed" method of Grafting.

THE relation between the stock and the scion is a subject to which reference has frequently been made in these columns. What is known as KNIGHT'S law, which VAN MONS expressed still more clearly, asserts that "only its own nature controls the development of the scion." It has, however, been proved that the statement is not universally true, and that the scion and the stock mutually influence each other more or less. Sometimes one predominates in influence, and sometimes the other; and a very important series of experiments in this connection is contained in VÖCHTING'S *Ueber Transplantation am Pflanzenkörper*, which was published a few years ago. Much additional and corroborative information has since been recorded by various observers, more especially perhaps by Prof. DANIEL, of the University of Rennes, in Brittany, who, in the *Comptes Rendus* (t. cxxv., No. 18), has lately given on this subject an elaborate account of recent experiments, which are all the more important, inasmuch as they tread on what may be called new ground in the field of the graft.

M. DANIEL mentions at the outset that in the ordinary methods of grafting, care is taken as a rule to suppress all the shoots of the stock at the time of the operation. Occasionally, and in order to facilitate the rise of the sap to the level of the graft, a bud or a few leaf-bearing shoots are retained at the apex of the stock. This procedure is, however, always of a temporary character, and the removal of all growths of this nature is effected after the graft has "taken," because, as is commonly said, the

existence of the scion would be seriously compromised by the more rapid development of the stock itself. M. DANIEL asserts that no attempt had ever been made to observe the effect of leaving a certain number of shoots on the stock, and keeping their development within bounds so as to preserve the life of the scion. He commenced his experiments on the hypothesis that different results should be obtainable—as regards the success of the operation itself, and also in respect to the reciprocal reactions of the scion and stock—if it were possible to maintain an artificial equilibrium between the parts, which would then simultaneously assimilate, and elaborate sap derived from one and the same source. M. DANIEL calls his new method the "mixed graft," to distinguish it from the other ordinary systems.

He states that whilst it is an easy matter to graft successfully plants with persistent leaves on certain other plants whose leaves are non-persistent, the inverse method is difficult, if not impossible; inasmuch, as the stock, when it is deprived of its persistent leaves by the ordinary process of grafting, exists in the winter practically at the expense of the scion which, being itself leafless by nature during the same period, is unable to render the necessary help. To this cause, M. DANIEL attributes the failure of the "ordinary" method in this connection.

In the spring of 1891, M. DANIEL grafted the wild Cherry (*Cerasus avium*) on the Cherry-laurel (*Prunus lauro-cerasus*), leaving on the stock certain shoots of which the young leaves were pinched back as soon as their development assumed proportions prejudicial to the scion. In the following year, too large a number of leaves was intentionally left on the stock, with the result that the scion suffered both in its development and from insect attacks. When, however, the stock was subjected to severe pruning, the scion was restored to its normal conditions, and when in subsequent seasons, the number of leaves left on the stock was proportionate to the growth of the scion, a perfect equilibrium between the two plants was obtained, and their growth was normal. The scion, moreover, has since borne fruit on two occasions, and some of its shoots have attained a length exceeding 1 yard annually. M. DANIEL therefore considers this union to have been completely successful, and he is of opinion, at any rate in the case of the two plants above-mentioned, that the "mixed method" offers a better means of grafting a tree with non-persistent leaves on an evergreen.

Another series of experiments was undertaken by grafting two different kinds of Haricot Beans. The grafting of Haricot Beans, as well as of other hollow-stemmed plants, had apparently been considered impracticable until M. DANIEL at the "French Association" meeting in 1892 announced its possibility by grafting the plants during the period of germination. In order the better to observe the differences between the "ordinary" and "mixed" methods in this connection, M. DANIEL selected two varieties with maximum characteristic differences, viz., the Black Belgian and the Soissons Haricots. The former is a dwarf and somewhat early plant, with a short inflorescence, bearing from three to five violet flowers, yielding two or three pods, which are tender and agreeable to the taste, and bearing dark-violet, medium-sized seeds. The Soissons Bean, on the other hand, is a Runner Bean, and a much later plant; its long inflorescence bears about twenty pale yellow flowers, with three to five coarse

Pods of a disagreeable taste, and its seeds are white and large.

Mr. DANIEL experimented with plants growing side by side under exactly similar conditions, in order to obtain comparative results of the two different methods of grafting, and he also grew plants of each variety under normal conditions, so as to serve as checks on the variations obtained. The results are shown in the following tabular statement:—

	Black Belgian Haricot.		Black Belgian Haricot on Soissons Haricot.		Soissons Haricot.	
	Not Grafted.	" Ordinary Graft."	" Mixed Graft."	Not Grafted.	Not Grafted.	Not Grafted.
Height	0.40 metres.	0.25 metres	0.40 metres	4.50 metres	4.50 metres	4.50 metres
Leaves	Numerous and vigorous.	Less numerous, paler green, and less vigorous.	Very numerous; very large	Very numerous; very large	Very numerous; very large	Very numerous; very large
Flowers	Violet (all).	Violet (all)	Some violet, others variegated white and violet.	Pale yellow	Pale yellow	Pale yellow
Flower-stalks	Short; three to five flowers, two or three pods.	Short; two or three flowers, one or two pods.	One long stalk, bearing nine variegated flowers. The others short, similar to the "check" plant. The long one bore three pods.	Long; about twenty flowers; three to five pods.	Long; about twenty flowers; three to five pods.	Long; about twenty flowers; three to five pods.
Pods	Tender, not stringy; taste very agreeable.	Slightly stringy; slightly like Soissons Bean in taste.	Partly stringy, with pronounced taste of Soissons Bean.	Stringy; taste peculiar, and very disagreeable.	Stringy; taste peculiar, and very disagreeable.	Stringy; taste peculiar, and very disagreeable.
Seeds	Dark violet.	Dark violet	Dark violet	White	White	White

The conclusions drawn by M. DANIEL from these experiments are as follows:—

The "mixed method" of grafting should be adopted to ensure more easily the union between plants of marked physiological differences, as in the case of persistent and deciduous leaves.

The direct influence of the stock on the scion is not identical in the "mixed" and in the "ordinary" methods. Those phenomena which may be considered due to variations in the surrounding conditions, as are the size and relative vigour of the scion, are less marked in the case of the "mixed" method. On the contrary, certain characteristics of the stock, such as its taste, the shape of its fruit, and the colour of its flowers, are much more easily conveyed to the scion by the "mixed" method, which should be used when it is desired to obtain by means of the graft new varieties possessing certain particular characteristics; or, in other words, to make the scion or its posterity acquire certain qualities of a given stock. Conversely, when the aim is to maintain the purity of the variety to which the scion belongs, the "ordinary" methods should be adopted, leaving, moreover, on the stock the smallest possible proportion of green parts—that is to say, to operate as near the root as is possible.

CROCUS ZONATUS.—A lovely autumn-flowering species, which grows in loamy soil, and commonly found in the Cedar and Juniper forests; often also in the Alpine region of the Cilician Taurus. The flowers are of a silky, pale violet colour, with distinct golden-yellow marks in the base. The illustration furnished by Mr. SIEHE (fig. 31) shows the plants as growing wild.

ROYAL HORTICULTURAL SOCIETY.—The next Fruit and Floral Meeting of the Royal Horticultural Society will be held on Tuesday, February 8, in the Drill Hall, James Street, Westminster, 1 to 4 p.m. At 3 o'clock the Annual General Meeting of the Society will be held in the Lindley Library, 117, Victoria Street, S.W.

M. CH. DE BOSSCHERE will treat of Orchids both in the French and in the Flemish languages. Mr. DE BEUKER will lecture on plants grown in apartments, and on town gardens. M. DE BOSSCHERE will also lecture on the art of arranging flowers. The dates fixed at present are January 30, February 6, Feb. 13, Feb. 27, and March 6, at 11 A.M. at the Zoological Garden. Further particulars may be had from M. VANDERLINDEN or M. ANATOLE DE COCK, the Secretaries.

JOHN LINDEN.—On the 12th inst., the *Semaine Horticole* will publish a full account of the career of the late eminent collector, accompanied by a portrait taken from one painted by his son, M. GASTON LINDEN.

1898, at half-past 6 o'clock precisely. The Council are inviting many distinguished persons as official guests.

FORESTS OF SIAM.—Langsuan, a district of Siam whence tin is obtained, produces the various kinds of fruit common to most Malayan States, the Durian, the Papaw, Mangosteen, Mango, Orange, Jack-fruit (*Artocarpus*), Melon, the Banana and others. The climate is hot, damp, and very unwholesome. "There lives in the dense jungle," said Mr. Warrington Smyth, at a recent meeting of the Royal Geographical Society, "a peculiar plant known to botanists, which is called by the Siamese Kalungton chang, and which sets up great irritation in the skin



FIG. 31.—CROCUS ZONATUS: FLOWERS OF A SILKY PALE-VIOLET COLOUR.
($\frac{1}{2}$ nat. size.)

HORTICULTURAL CLUB.—The twenty-third anniversary dinner will take place on Tuesday, February 8, at the Hotel Windsor, Victoria Street, Westminster, S.W. The chair will be taken by Sir J. D. T. LLEWELYN, Bart., M.P., chairman of the Club, at 6 p.m.

NATIONAL ROSE SOCIETY.—Offers of special prizes are earnestly requested, as the General Purposes Committee will meet shortly to prepare draft copies of the schedules for the year. Such prizes will be more than usually welcome, owing to the sum available for the Crystal Palace show being much smaller than in the previous year.

ROYAL HORTICULTURAL AND AGRICULTURAL SOCIETY OF ANTWERP.—The Society has established a series of lectures on horticultural subjects, thus:

SEEDSMEN'S ENTERPRISE.—It appears that we were not sufficiently well informed when we commented on the apparent want of enterprise of our seed-firms. Messrs. CHARLES SHARPE & Co. (Lt.), now send us catalogues in French and German, with the prices and quantities given in terms which foreign purchasers can understand. No foreigner could make head or tail of our own idiotic weights and measures.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held on Monday, February 7, 1898, when the adjourned discussion on the paper read by Mr. A. HUDSON (Associate), at the last meeting, entitled "Technical Tribunals and Surveyors as Arbitrators," will be resumed. The chair will be taken at 8 o'clock. The Annual Dinner of the Institution will take place at the Holborn Restaurant (King's Hall) on Wednesday, February 9,

of any person coming into contact with it. It has a large broad leaf, and the Siamese declare, after being badly stung by it, the only remedy is the heat of a fire; to bathe in a stream, which is the natural impulse, is considered absolutely fatal." Probably this is some Urticaceous tree, but the description "a large broad leaf" lacks amplitude.

LONDON PARKS AND OPEN SPACES.—Sir JOHN HUTCHINSON, a former Chairman of the London County Council, in the course of an address on "Some of London's Municipal Facts and Figures," gave some interesting details as to the growth of open spaces in London during the past ten years. The London County Council, which was constituted under the Local Government Act of 1888, came into power in 1889, and at that time London possessed only forty parks and open spaces, with an acreage of 2,653. At

the present time London has seventy-nine parks and open spaces, so the number has practically doubled during the last nine years. The acreage is now 3,685, an increase of over 1,000 acres; neither of these items of acreage include what are known as Royal Parks, as Sir JOHN was dealing only with those under the control of the London County Council; the actual result is the addition of 1,029 acres during the past nine years. By comparing this added acreage with that of the Royal Parks, some idea is gained as to what this added acreage really means. Hyde Park is 400 acres in extent; Regent's Park and Primrose Hill combined amount to 450 acres; the Green Park, adjoining Piccadilly, 71 acres; and St. James' Park, 83 acres. These figures totalled up amount to 1,001 acres; so the added acreage of parks and open spaces provided by the London County Council since its formation more than equals the whole extent of the four royal parks, the extent of the latter being 20 acres short of the total increase since 1889. The cost of maintenance is £105,000 per annum, which roughly speaking comes out at about £28 per acre, certainly not too large a sum when one considers how well they are kept, and what an enormous boon they are to the community. Sir JOHN HUTTON can boast, with justifiable pride, that during the three years he was chairman of the Board the large majority of these new additions became added possessions. It should not be forgotten that the immense zone which is known as greater London, lying beyond the circumference of the area governed by the London County Council, has, during the past fifteen years or more occupied itself in also adding to its open spaces. London grows in every direction, and local governing bodies are fully alive to the necessity of making this provision to the great advantage of the several localities particularly interested.

— The EARL OF MEATH as President of the Metropolitan Public Gardens Association, has addressed a letter to the *Times* on the subject of the maintenance of the smaller pleasure-grounds of London, and discusses the question, whether they shall be maintained wholly or in part by the London County Council, or by the local authorities. "The open spaces in London of less than 10 acres in extent, which are at present kept up for the enjoyment of the public, number 208, aggregating 366½ acres. Of these the London County Council at present maintain 42. Many of the London district boards, vestries, and burial boards are keenly interested in the maintenance of open spaces, and are very successful in their management. For instance, Hackney keeps open 19 such grounds, Islington 10, and St. Pancras 8, whilst 34 other similar bodies, including the City of London, are responsible between them for the maintenance of 77 grounds." The Earl concludes his remarks thus—"It is to be hoped, therefore, that the London County Council, whilst contributing towards the cost of the maintenance of all small public open spaces within the metropolis, will, as far as possible, leave their management in local hands."

A BOTANICAL GARDEN FOR ABERDEEN.—A serious deficiency in the equipment of the University (a deficiency in which it stands alone) is the want of a garden to provide means and opportunity for the study of living plants, and to render possible the efficient teaching of vegetable physiology, which is required by ordinance as an essential part of botany in the final examination for the degree of B.Sc. The recent institution of degrees in agriculture renders the necessity for such means of instruction more pressing. A small botanic garden might be suitably provided near King's College at little cost. More than a century ago it was proposed to set aside a "spot of ground" behind what is now the Biblical Criticism Manse for a botanic garden, as being "uncommonly well adapted by the variety of soil it contains, its command of water, its sheltered situation, and its nearness to the College;" but financial difficulties prevented the project from being carried out. The same spot of ground would still be suitable; and, on a representation recently made with regard to it by the Professor of Botany (who was, however,

then unaware of the earlier proposal), the University Court, while regretting that the state of the University funds did not meantime permit of the proposal being carried out, recognised the necessity of some such provision being made as soon as possible. The first cost of laying out the ground may be estimated at £200; and the annual expense of maintaining it with rigid economy, as an open-air garden without greenhouses, at £100, which capitalised at thirty-three years would amount to £3300—in all, say, £3500.

KENSINGTON PALACE.—The most beautiful portion of the whole group of buildings, says the *Times*, is the Orangery, a long garden-house which was built by Sir CHRISTOPHER WREN towards the end of his life, and which bears Queen ANNE's monogram. It is in red brick, and so far as the south front and the ends are concerned, is in admirable preservation; but the exquisite interior has been the victim not of neglect, but of chronic outrage. For, as the little garden between this and the Palace has been found a convenient place on which to put up the glasshouses, frames, and potting-sheds necessary for the park-gardeners, what more natural, to the official eye, than that the Orangery close by should be pressed into the same service? Accordingly, at some time or other, which cannot have been very many years ago, more than half the beautiful high Oak-panelling of this building was torn down and has disappeared; the gardeners' stands have been let into the walls, and there the daily work has proceeded with no thought that it was a daily desecration. Fortunately, it is not beyond the skill of a modern wood-carver to work from WREN's models as well as WREN's own men could do. When that is done, and when the floor has been relaid—whether in concrete or Oak appears to be not yet decided—this will be one of the loveliest buildings of the late Renaissance period to be found in England. It is proposed, we believe, to put it to no active use, but to make it just a resting-place and a refuge from the weather for any visitors to the gardens. But, that the impression may be complete, it will be positively necessary to remove the greenhouses to another quarter, perhaps to the neighbouring meadow, where they would be fairly out of sight, and the ground on which they stand must then revert to its original intention and be laid out in walks and flower-beds.

THE ROYAL GARDENERS' ORPHAN FUND.—The monthly meeting of the committee took place on the 28th ult., at the Hotel Windsor, Mr. WILLIAM MARSHALL presiding. The following special donations were announced:—Scottish Horticultural Association, £50; Royal Caledonian Horticultural Society, £26 5s; Chesterfield Gardeners' Association, £5 18s. 4d; Mrs. Wills, 16, Ooslow Crescent, £5 5s.; Messrs. W. Thomson & Sons, Clovenforde, box, £4 5s. 4d.; Mr. J. H. Vallance, Bristol, £4; the Leeds Paxton Society, £2 15s; Mr. H. Herbst, Kew Road, Richmond, £2 2s.; Mr. J. Smith, per Mr. J. Wright, £2; Mr. George Fry, Lewisham, box, £1 3s. 5d.; Messrs. J. Veitch & Sons, box, £1 2s. 8d.; the Bournemouth Gardeners' Association, box, £1 1s.; Mr. G. Nicholson, Kew, box, £1; Miss Forrest, Anderton's Hotel, Fleet Street, box, £1; Mr. T. Turner, R.H.S. Gardens, Chiswick, box, 15s. 8d.; Mr. J. Selway, Betteshanger, 17s. 4d.; Messrs. H. Cannell & Sons, Swanley, box, 11s.; Mr. J. Miller, The Gardens, Ruxley Lodge, Esher, 10s.; the young men at Ruxley Lodge Gardens, 10s.; Mr. A. D. Christie, Ragley Hall Gardens, Alcester, 7s. 6d.; young men at Fairlawn, Tonbridge, 7s. 6d.; and the Chislehurst Gardeners' Society, 6s. Great satisfaction was expressed at the very handsome donations from the two Scottish horticultural associations. A draft report and also a financial statement, were adopted for presentation at the coming annual meeting. Some letters of deep thankfulness were read from the mothers and guardians of children, who, by reaching the allotted age, have ceased to be chargeable to the Fund. One passage in the report touches on the timely help afforded to children who have been on the Fund, in the way of assistance in getting a start in life. The

annual dinner is fixed for Wednesday, April 20, and will take place at the Hôtel Métropole, CHARLES KEYSER, Esq., Warren House, Stanmore, presiding. This being the last meeting of the committee previous to the annual general meeting, a hearty vote of thanks was passed to the Chairman for his services during the year.

THE AUSTRALIAN KITCHEN GARDEN.—By FRANK FINEDON (George Robertson & Co., Melbourne, Sydney, Adelaide, Brisbane, London). A book destined to give "reliable information in handy form" cannot fail to prove of great value, and this is certainly the case with the volume before us. Some idea of the subject-matter may be gleaned from the table of contents, where under the heading of management we are referred to information concerning tools, frames, hot-beds, and horticultural operations such as seed sowing, watering, &c. Varieties and Treatment is the heading to the instructions for growing vegetables (from Artichokes to Vegetable-Marrows); miscellaneous crops include Arrowroot, Castor-oil Plant, Chinese Yam, Liquorice and Tobacco; while land measure, a monthly calendar of operations, and a sheet calendar are last in place but not in value. Various illustrations brighten the pages, and the detailed information given respecting every variety of vegetable mentioned (alphabetically), is furnished by a highly competent authority. Salad plants, we note, receive special treatment in Mr. FINEDON's book.

THE NORTH PECKHAM AMATEUR CHRYSANTHEMUM SOCIETY held its annual dinner on the 27th ult., the proceedings being markedly enthusiastic, and the prospect of special and other prizes for competition during the present year, are very encouraging.

PUBLICATIONS RECEIVED.—*The Rural Monthly*, 18, Cheapside, E.C., Jan., 1898. The first number of a new journal with the sub-title: Small Farms Agency and Producer and Consumers' Advertiser.—*Proceedings of the Agri-Horticultural Society of Madras*, July to September, 1897, includes papers on Opuntia as Cattle Fodder, Rubber-plant Seed, Mangosteen, Carrot Seed, &c.—*The West Australian Settlers' Guide and Farmer's Handbook*; Parts I. to IV.—*National Footpath Preservation Society*; Thirteenth Annual Report. The report endeavours to do justice alike to the landowner and the wayfarer. Undoubtedly much damage is done by thoughtless people, but not by naturalists.—*Delectus seminum ex horto Cantabrigiensi Academia ad mutuum commutationem propositorum* (Exchange Seed-list Cambridge Botanic Gardens), R. I. Lynch, Curator.

HOLKHAM.

A PERFECT model of an Italian garden forms part of the beautiful environment of the house, whose principal approach is from the south, the main entrance being through a noble portico of Corinthian columns. Here, in an oval sheet of water, is a fine ornamental fountain, with a group in the centre representing St. George and the Dragon. Three columns of water issue from the dragon's mouth, and form an excellent fac-simile of the Prince of Wales' feathers. The water on the estate is drawn from an artesian well 750 feet deep, and the site of the well is only 20 feet above sea-level. In the pleasure-grounds are three large Pines, which are probably the oldest in England. It was understood that the seed was brought to Holkham from Corsica, and it was always believed that the trees were *Pinus Laricio*, which has twisted leaves, occasionally 6 inches long. Both on the ground of the tradition associated with the seed, and the appearance of the trees themselves, Mr. Munro, who is no mean authority, accepted the belief that they were *Laricio*, but the consensus of opinion on this occasion was that they are *austriaca*; and in several other parts the Corsican Pine was pronounced to be a variation of the Austrian, and not *Laricio* at all. One of these trees has a girth of 30½ inches (quarter girth), and is about 90 feet high. Another is a foot less in girth, but towers to a height of over 90 feet.

Most of the Pines hereabout were grown from the seed of the older trees. Here we saw an *Abies Pinsapo* and *Cedrus atlantica* in cone, and a Portugal Laurel in seed. A *Cedrus Libani* close by is 30 inches quarter girth (under bark), and a *Wellingtonia* is 33½ inches, and 65 feet high. A Tulip-tree, an *Acer Negundo variegatum*, and an *Abies cephalonica* (the latter 45 feet high, and in perfect health) were also noted. Growing outside in the gardens were well-fruited Fig-trees, and Tomatoes were fruiting freely in the open. There are 6 acres of enclosed garden land, and a corresponding acreage of orchard, with ranges of conservatories, vineries, and other glass-houses for exotic plants and fruits. Of the 3200 acres enclosed

GEORGE FRY.

We have much pleasure in publishing, from his own pen, a few salient particulars in the life of a celebrated gardener and nurseryman, and most estimable man. Many of our readers will be acquainted with his name only as being the raiser of numerous varieties of Fuchsias in the early forties and later, although to the younger generation of gardeners Mr. Fry is practically unknown out of his own neighbourhood—but we will let Mr. Fry tell his story in his own way:—

"I commenced my career in the early thirties, and when the first gardener's newspaper came out,

this general routine of garden practice; and when there has been deep snow and keen frost, I felt proud in being a young gardener. At this time I took in Macintosh's *Practical Gardener*, and thought nothing of running about two miles in my dinner-hour to obtain the monthly number or part; this was when I was about sixteen years of age, and what little money I got all went for gardening books.

In 1846, by the advice of Dr. Lindley, Editor of the *Gardeners' Chronicle*, I registered my contrivance the 'West Kent Garden-pot,' having shown that gentleman a model at 21, Regent Street, London, where the meetings of the Horticultural Society used to take place. I sold my rights in the patent to Mr. Pascall, of The Potteries, Chislehurst, and handed him two ten-pound orders, one from Mr. William Barnes, who has been described as the father of plant-growers, and whose fame was well known as such at the grand shows at Chiswick; the other order was from my old and highly-esteemed friend, the late Mr. W. P. Ayres, gardener at Brooklands, Blackheath, who was at that time an able contributor to the *Gardeners' Chronicle*. From this time I was frequently attending the meetings at 21, Regent Street, about 1850, with what was described as a self-acting fumigator, the original sulphurator, and the fumigator and sulphurator combined. About 1855, engravings with description may be seen in the *Gardeners' Chronicle* of my patent Seakale propagating-pot and Fern-pans. My mode of growing bedding plants in turf, both in pits, frames, and also in boxes. These articles appeared in the *Gardeners' Chronicle*, April 24 and May 15, 1852, with a facsimile of the instrument used for perforating the turf.

One of the very interesting periods of early life was in 1842, 1843, 1844, when I was engaged as under-gardener at John Angerstein's, the Woodlands, Blackheath, at one time one of the finest places in Kent, and noticed by the truly gifted and noble-minded man, John Claudius Loudon (who inserted the very first article written by me), during the short time that he was editor of the *Gardeners' Gazette*. In giving brief descriptions of noblemen's and gentlemen's places throughout the United Kingdom in his stupendous work, viz., the *Encyclopedia of Gardening*, published in 1827, thus, 'Woodlands, near Blackheath, J. J. Angerstein, Esq., an elegant mansion of Portland stone, in a commanding situation, the grounds agreeably varied, and the gardens remarkable for the quantity of glass they contain. There is a very large conservatory, and numerous vineries, the invention and execution of Mr. D. Stewart, when this gentleman's gardener. Also an excellent collection of exotics.' During the latter part of the time I was at the Woodlands, which was then in the possession of John Angerstein, the son of the former John Julius Angerstein, I had been removed from the kitchen garden, fruit, and forcing department, and put in charge of the large conservatory, plant-house, and pleasure-grounds. In the conservatory was growing one of the first *Araucaria excelsa* that was introduced into this country, which, after reaching 30 feet, had the top cut off, having reached the glass roof. On the columns in the centre of the conservatory, hidden by the large shrubby plants, I was much interested in reading the names of many young men who had been employed here, and removed into other situations. Sweet, subsequently the eminent botanical writer and author, I was told, was at one time an under-gardener in this old place, which is no more to be seen, as its beauty was destroyed—in fact, completely annihilated. The Peach-houses and vineries in which I had to work have long since been cleared away. I may mention, that it was at this time that I was induced to take the Fuchsia in hand, and succeeded in producing many good specimens in large-sized pots, which used to decorate the terraces outside, and also grown in the inside of the conservatory. These were only species when I entered the arena of gardening, and at this time varieties (good ones) were not so very numerous; that old trite adage, how true it proves, that 'every dog has its day,' old leaves have to give place to new ones. Such is our transitory state and natural condition, plants which have been



GEORGE FRY.

by park walls, over 1000 acres are woods and plantations; while there is a pretty lake, about 1000 yards long, with three islets, haunted by waterfowl of English and foreign breeds. From the pleasure-grounds we drove on to the Obelisk Wood—a wood which takes its name from a stone column 30 feet high, on the main drive leading to the south lodge. The Obelisk was erected in 1729, a few years before the building of Holkham House was commenced. It was close to the Obelisk that Mr. Munro pointed out to us the largest of the evergreen Oaks. In the wood of that name are several large Beeches. One of these measures 31 inches quarter girth, and has a fine clean bole; it was computed to contain 233 cubic feet of timber. Another Beech has a quarter girth of 32 inches, and is said to contain 350 cubic feet of timber. *Transactions of the English Arboricultural Society.*

which was published on January 7, 1837, I became a subscriber in the autumn of that year; and well I remember the winter of 1837—1838, and known or designated by some as 'Murphy's' winter, he having predicted the coldest night. The Royal Exchange was destroyed by fire on the night of January 10, 1838; the destruction of shrubs and vegetation generally was very extensive. Nevertheless, I was enabled to cut very handsome Cucumbers in the month of April following this rigorous winter; not the kind of Cucumber we grow now, but the old favourite ribbed Black Spine, that carried a beautiful bloom, like a well finished bunch of Grapes. At this time our early forcing was done mostly by fermenting material—good horse-dung and leaves. We had our handsome, clean Potatoes early in the mouths of spring; also Radishes, Carrots, and all such things as required. All my early days were much occupied in

idolised and almost worshipped have to fall back into the ranks of generally cultivated plants as an ordinary subject. This, doubtless, is a judicious order of Nature's behest for the welfare of mankind in a commercial point of view, also physically and mentally. *George Fry.*"

"THE SUMMERS OF 1896-97: THEIR EFFECTS ON THE FRUIT- TREES AND FRUIT-CROPS."

IN reviewing the many-sided effects of the summers of 1896-97, the facts range themselves as favourable and unfavourable. The tropical heat, combined with drying winds, and that general absence of rain during the spring months of the period under notice, dried the soil to an unusual extent; and although in 1896 abundant autumnal rains fell, in 1897 the months of September and October were the driest known for years.

The effect of the heavy rains of the autumn of 1896 was felt in the activity of the sap and the adhesion of foliage on fruit-trees rather later than usual, and consequently the trees did not get that rest which is as necessary for the vegetable world as for the animal creation; and we agree with Mr. R. D. Blackmore that the general failure of fruit-crops in the spring of 1897 was largely due to that cause.

The want of power in the trees themselves to lay up that necessary nutriment, and ability to perfect embryo fruit-buds, was arrested at a critical period, and as reported in the gardening papers, many cases of imperfect blossoms were noted in fruits, and doubtless many more facts would have been discovered had they been suspected and looked for.

To outward appearance the blossoms were perfect, the corollas being bold, as usual; but in many individuals either stamens or pistils were wanting, and no doubt also the upper or fruit-nourishing roots suffered from the want of surface-moisture, and thus were prevented from doing their work—while lower anchor-roots struck deeper and deeper to gain moisture and sustenance for the development of the tree, making the subject less fertile, and adding gross wood to all garden trees, and thus trees were found to require root-pruning more than usual to restore that relative balance of fruit and wood-producing power which a well-managed fruit-tree should exhibit.

In orchards (especially among young trees) the want of fruit was a distinct benefit, as they are then enabled to form vigorous trees before starting to crop, and a foundation is thus laid for full development and after-success; as if a young orchard-tree commences to crop in its earlier stages, its after-growth is checked for years, and in the future such checked trees produce pecks where bushels of fruit should be garnered.

In the dry autumn of 1897 matters were different, and the glorious and gorgeous colours of the foliage on Cherries, Peaches, and Nectarines, and the fine russet-brown of the Apple foliage, and the golden Plum-leaves, leads us to infer that Nature's work has been well and truly done, and with a fair spring a good all-round crop may be anticipated in 1898.

Although from a nurseryman's point of view the shorter and stouter growth fruit-trees made in 1896-97 meant some loss and extra expense in staking for standard trees, &c., still the growers cannot fail to be great gainers in having the wood of fruit-trees well ripened, hardened, and consolidated for future benefit as heavy frosts tell much less severely on such perfected trees. If this is felt in the south, how much more must it benefit planters who live in the midland and northern counties! The pretty fruit shown, by Mr. Day, from Galloway, and the grand Pears from Mr. Divers, Belvoir Castle Gardens, sent to the Royal Horticultural Society, bear out this fully.

The fruit crop of the Jubilee year, 1897, will be noted in our minds for its remarkably high colour and development more than for great size. Many examples submitted to us have been beautiful beyond all former years; for example, crimson Blenheim Orange Apples, Warner's King, and other green Apples with scarlet flushes on the sunny side; and Comice and other Pears with

lovely red cheeks; while many Russets have lost their character and come out with golden skins, only broken here and there with russet. Many of the less hardy Apples as Lord Suffield, Ribston, King of Pippins, and Glout Morceau, Bergamot d'Esperen, Gansell's Bergamot, and other Pears have been so handsome and good, that planters have called for them freely, forgetting that they are not to be relied upon (as a rule) for freedom from canker, or quality. Their extra good appearance, flavour, &c., points a moral, and doubtless we ought to place these and similar good but variable Apples on walls or in warmer places. Apples of the type of American Mother, Melon, Scarlet Nonpareil, Allen's Everlasting, Duke of Devon, Sturmer Pippin, with those that do not always ripen well, as Calville Blanc, Boston Russet, Calville Rouge, Chatley's Kernel, Reinette du Canada, Dutch Mignonne Apples, with Beurré Diel, Bergamot d'Esperen, Olivier des Serres, Beurré Rance, Beurré Baltet, President Osmoville, Easter Beurré, Zéphirin Grégoire, &c., Pears, would not be out of place on many walls which are well situated, and now devoted to a doubtful crop of Peaches or Nectarines, especially those old walls, unpainted and full of nail-holes one often sees in ancestral gardens, where choice Pears and Apples would flourish and give good results.

The extended use of large and handsome Apples for decoration should lead growers to place Peasgood's Nonsuch, Buckingham, Belle de Pontoise, the Queen, King of Tomkin's County, Twenty Ounce, Gascoigne's Seedling, &c. on walls for this purpose.

One special feature of the 1897 fruit crop was the general success of the British raised varieties, such as Nonpareil, Northern Greening, Wyken Pippin, Blenheim Orange, Devon Quarrenden, Yellow Ingestre, Stirling Castle, Wellington, Ecklinville, Kerry Pippin, Keswick Codlin, Winter Queening, Nanny, Hormead's, Lane's Prince Albert among Apples; and Hesel, Althorp Crassane, Hacon's Incomparable, Bishop's Thumb, Pitmaston Duchess, Crawford, Aston Town, Eyewood, and Knight's Monarch, among Pears, causing a demand to arise for trees of many old and superseded kinds, which for market purposes are yet valuable.

The general crops on the Codlin and early Apples and Pears need only be noted to state the fact that such kinds have time to recover themselves after the fruit is gathered, and so prove regularly fertile.

Exceptional prices have been made of some fruits. In our district, Devonshire Quarrenden, Ingestre, and Ribston Apples (one grower selling 100 bushels of the latter as gathered at 14s. 6d. per bushel), while Cox's Orange Pippins made up to 25s. per bushel retail; and Wellingtons, with a Peach-like colour, made 10s. 6d. wholesale.

As might be expected, the heat and drought has caused all late Pears to ripen months before their usual season, and by the time this is in print many fruit-rooms will scarcely have a Pear in them; at present Olivier des Serres and Beurré de Jonghe with a few Easter Beurré from open trees are all we possess.

But we are inclined to think thorough ripening will allow us to keep Apples as late as usual, while they will certainly not be so large examples—in short, beauty will compensate for mere size.

Perhaps no outside fruit felt the grand weather of 1896-97 more than Peaches and Nectarines on walls. The trees made that reddish wood so dear to the cultivator's eye, and the crop set well; and the fruit where the trees were copiously watered, grew out to a fine size, and coloured to perfection, raising the almost lost hopes of many old gardeners to encourage them to persevere in their open-wall cultivation; those who had late Peaches made long prices, as the fruit under glass was forwarded by the heat, and thus made a market for the outdoor crop. Peaches and Nectarines are yearly more in demand.

We attribute the failure of the Plum crop to the causes already named, which by their surface-rooting nature, would naturally be affected more than deeper-rooting fruits.

We cannot refrain from again cautioning gardeners from relying on a few varieties for an annual crop;

and the best kinds for quality should be planted in various positions to ensure a return, and also to lengthen the season of each kind.

Market-growers naturally go in for the sorts favoured by the public, but we are inclined to think many less known but reliable croppers should be introduced.

Strawberries, Raspberries, and bush-fruits generally cropped where good deep cultivation was practised.

In conclusion, it is evident that cultivators should do all in their power to utilise all the sunshine possible, and the protection they possess added to careful thinning of boughs and fruit, and by giving liberal encouragement to the trees that crop, and not over-stimulating those that are barren. *A paper read at a meeting of the Horticultural Club on Tuesday, January 11, 1898, by Mr. George Bunyard, V.M.H.*

LUCULIA GRATISSIMA AND OTHERS.

ON Tuesday, December 22, 1897, I found a whole house, some 35 feet long, 10 feet wide, 6 feet high in front, and about 10 feet at the back, filled with this fine old but rarely seen plant. The bushy plants were smothered with their fragrant blooms. I have grown and frequently met with this autumn and winter-blooming plant on the back-walls of green-houses, vineries, orchard-houses, corridors, &c., in several gardens. And at the present time there is a nice plant in bloom in the well-furnished corridor in the Edinburgh Botanic Gardens. Not a few of us have also been more or less successful with it in pots. But this is the first time I have met with the *Luculia gratissima* in its proper position, that is as a standard, and the effect was gratifying as it was striking. The plants look venerable from great age rather than by reason of their size, and they were blooming profusely, and fully furnished without crowding the space allotted to them. They had more flowers per square foot than I have ever seen before, and were looking remarkably free from insects and healthy, not easy of attainment in *Luculias* during their flowering season.

Mealy-bug and thrip are the chief foes of the *Luculia*, and they need a good deal of dosing to effect their complete extermination.

Cleanliness is not only the parent of health for the *Luculia*, but the chief secret of success in growing the plant. Though as to the latter, there are several more. One of the chief is, to let well alone. Prepare a border of about equal parts of peat and loam, or a fourth of gritty silver-sand, leaf-mould, peat, and loam, say 2 feet deep, of any convenient size. The old idea was, the narrower, in reason, the better. Hence, the correct practice at one time was to brick off a limited area from 1 foot to 2 feet square, for the roots of the *Luculia*. There was a common belief that the plant should not have its roots disturbed after planting, nor allowed too much space in which to roam.

Its security of tenure seems to have been religiously respected at the fine old nurseries of Messrs. Cunningham, Fraser & Co., Comely Bank, Edinburgh. Mr. Fraser seemed rather uncertain as to the exact age of these fine plants. With the exception of the front path, and a few shelves, the *Luculias* had the house wholly to themselves. An occasional top-dressing with liberal supplies of water through the growing season were the chief points in culture. But a dry time after pruning was also important. I found, too, that the exact mode of propagation was looked upon as a trade secret. This is less to be wondered at when it is known that this firm supply most of the trade with *Luculias*. Seeds come from abroad, and no plant can well be easier raised from seeds if these be raised in warmth of 65°. During their early stages, however they should be shaded from the sun; but seedlings seldom bloom from seed in less than three years, and there is some difference in the growth and flowering of seedlings. Hence, we are driven to employ cuttings, which few growers, however, succeeded in rooting freely. They have been tried in all stages of growth, with and without heels, in an infinite variety of temperatures

and composte, and here only have I found them rooted readily in quantity, and almost with absolute certainty.

The quantity grown and distributed is the best proof of the success in rooting *Luculia gratissima* at the Comely Bank Nurseries. Beautiful and sweet as these plants are, the flowers fade so quickly after cutting as to render them of little or no commercial value as decorative flowers. Planted in conservatories attached to a house, or grown in pots and placed on staircases, halls, or corridors, the fragrance of *Luculias* is uniquely grateful and pleasing.

As already stated, I am unable to give the exact method of propagation so successfully followed by Mr. Fraser, of the Comely Bank Nurseries.

As to the profuse blooming of this fragrant plant, very much depends on the mode of pruning, and treating it to a dry regimen for two or three months afterwards. A *Luculia* must not be cut back too

ALPINE GARDEN.

MORISIA HYPOGÆA.

AMONG hardy alpine plants of the order Cruciferae, this little species is well worthy of cultivation, there being scarcely any part of the year when a few blossoms cannot be found, although its proper period of flowering is July and August. The blossoms are produced in abundance, and are even now fully expanded on a sunny part of the rockery. They are borne singly on short stems, issuing from a tuft of deep green leaves, and are of a deep yellow colour. The plant grows but 3 inches in height, and requires for proper development a rich sandy soil. It is easily propagated from seed or cuttings put in during the summer. It is a native of Corsica and Sardinia, from which country it was introduced in 1833, and is



FIG. 33.—*MAGNOLIA CAMPBELLII*: FLOWERS DEEP ROSY PINK, SHADING OFF INTO WHITE AT THE CENTRE.

closely, as the young shoots break but sluggishly if at all from the old wood. And as the plants bloom on the ends of the young shoots of the current year, unless they break freely there can only be a scant crop of bloom. The season to prune is shortly after the flowers fade, which may be timed for any season from October to January. And from then till the starting period in April or May, little or no water should be given to *Luculias*.

Hitherto I have said nothing of the one other species or variety, *L. Pinceana*, which this firm also keep, though I quite endorse Mr. Fraser's estimate of their merits, viz., that contrasted with *Luculia gratissima* at its best, *L. Pinceana* is not worth growing. Placed under similar conditions, however, *L. Pinceana* blooms, if at all, earlier, continues longer in flower, is white, the larger of the two, and mayhap yet more fragrant than its rose-coloured rival. *L. Pinceana* has also smaller, more glabrous and showy leaves than the more generally grown and freer-blooming *L. gratissima*. The last was first in the field, having been introduced from the temperate Himalayas in 1825, and the *L. Pinceana* from the Khasia Mountains in 1843. It is generally admitted that neither of the species have obtained the popularity which their obvious or latent merits, and especially their unique fragrance and late autumn or winter blooming warrant. D. T. F.

monotypic. A description of the plant is given by Robert Sweet in his *British Flower Garden*, series 2, t. 290, published during the years 1831—1838. E. S. Woking.

MAGNOLIA CAMPBELLII.

THOSE who have access to the fine *Illustrations of Himalayan Plants*, published by Sir Joseph Hooker, will remember the splendid plate of this noble species. That the artist did not exaggerate is testified by Mr. Gammie, who records the flower as measuring ten inches in diameter.

In this country, so far, it has proved a disappointment. In 1885, it first flowered in Mr. Crawford's garden near Cork, and afterwards in other gardens in that country. Now Messrs. R. Veitch & Son of Exeter favour us with a flower taken from a plant which has been growing in the open air in their nursery for the last twelve years. The tree is covered with flower-buds, and we hope it may be possible to protect them in the event of frost. The colour of the outer petals was a rich rose-pink. A coloured figure is given in the *Bot. Mag.*, Jan. 1885, tab. 6793, from a flower produced in Mr. Crawford's garden.

HOME CORRESPONDENCE.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Your leader in last week's issue is well timed, and it places facts referring to the Institution in a fair spirit before the public. There are three points in connection with this charity which one has to deplore, viz., the apathy shown by the lack of support afforded by gardeners; the large number of spoiled voting-papers by non-signature; and the election of non-subscribers. In perusing the official list of subscribers one finds that the larger number of gardeners' names are those of men who hold leading places, and but very few of those holding second grade situations. Reasoning by analogy, the former are less likely to require assistance than the latter, although the records of the Institution unfortunately show many exceptions. The great falling off of subscribers appears amongst the middle-class men, whose ranks, nevertheless, supply nine-tenths of the pensioners. It is these men who should have the claims of the Institution brought urgently and persistently before them, so as to arouse them from their present apathetic condition. Possibly gardeners from the very nature of their isolated lives, are more apathetic than some other classes of the community; anyhow, I have arrived at this conclusion, that if every man of the 6,000 gardeners could be canvassed, and the whole particulars explained in a friendly way, a large number of subscribers would be added. How can this best be done is the question; my answer is, by the formation of county auxiliaries. Take the example of one of the youngest auxiliaries, that of Worcester: half-a-dozen enthusiastic men put down five shillings each to meet the preliminary expenses, and in two years they forwarded about £250 to headquarters, including many annual subscribers and life members. If each county did likewise, what a splendid result would follow! Extreme men require extreme measures, and much as I hate coercion, I would carry the canvass into a year or nay, from every gardener, nurseryman, or florist worthy the name, and his answer should be recorded faithfully. This could all be done with little trouble, if two or three energetic and enthusiastic men in each county would set it going. This would be infinitely better than grumbling, as "A. D." does, at the disappointments of the ballot. If he would use his well-known tact and ability, aided by his powerful pen, many subscribers might be added, and consequently there would be more pensioners, and fewer disappointments. Probably, the non-signing of voting papers was an oversight, the intention being to enable the Committee to make selection of candidates out of the multitude of distressing cases, in fact, all of them worthy. There can be no doubt, a large section of subscribers are very conservative as to exercising their votes, and would resent any change or loss of privilege. There is also rather a strong feeling, and rightly so, against placing non-subscribers of less than five years on the pension list, in preference to older persons who have subscribed for a longer period. It is to be hoped influential county gardeners will take the matter up seriously; and any little information or details will be cheerfully rendered by William Crump, *Madresfield Court Gardens*. [We have a large number of letters on this subject which we cannot publish, but of which we may be able to give a summary. Ed.]

—In the case of the elections to the Royal Gardeners' Orphan Fund, the executive committee prints in bold type, just above the place for the signature of the voter, this sentence:—"Any voting-paper duly filled up, but unsigned by the voter, may be signed by a life-subscriber or member of the committee." By making this proviso, many votes are saved to candidates which would otherwise be lost. Signed papers, but without any indication how the voter intended his or her votes to be given, are, of course, rejected. If the committee of the Gardeners' Royal Benevolent Institution took power to do this, the loss of votes so much deplored would be prevented. Surely such power can be given to the committee without the slightest danger of its being abused. Your proposal that the committee should select the most pressing cases and propose them for election at the annual meeting would not only save the expense of voting-papers, but avoid any waste of votes. It is, at the same time, a proposal likely to create much difference of opinion. R. Dean.

THE MILD WINTER IN SOUTH DEVON.—As an indication of the mildness, so far, of the present winter, I noticed on January 17 the first flower open

of *Doronicum plantagineum*; this usually with us here is at its best during March and April, and a large number of clumps in the herbaceous borders have always proved invaluable for cutting purposes. It is a very free and strong grower, and to those who in the early spring can use flowers of various colours for house-decoration, I say by all means have a good supply of this, and I am sure much satisfaction will be received. As it is natural to make rather long flower-stalks, the plants should be placed where a good row of shrubs will afford some protection from keen, cutting winds, otherwise the flowers are apt to be blown over, and consequently damaged. Side by side with this are some plants of *Ageratum*, which were put out last May and June, when the flower-garden and borders, &c., were bedded-out. These *Ageratums* have been in flower almost ever since, and good clusters of purple flowers can still be gathered. In the same border *Forget-me-Not* is flowering, truly an early reminder of the coming spring; whilst in a border just removed from these, good spikes of *Pentstemons* are still brilliantly in flower. *Carnations*, *Pansies*, *Wallflowers*, *Primroses*, *Mignonette*, *Violets*, and the common *Marigold*, beside buds of *Gloire de Dijon* Rose, give an impression of brighter days rather than mid-January, when there is a possibility of there being 20° of frost, and a thick covering of snow. Though we scarcely expect any intensity of frost now, the snow may come and remain some time yet. *W. Swan, late of Bystock Gardens, Exmouth.*

PASSIFLORA EDULIS.—I can fully endorse every word Mr. D. T. Fish writes on p. 52 in favour of *Passiflora edulis*, the editorial remarks notwithstanding, for it is a most delicious fruit and a valuable addition to the dessert, extending over a long season, and highly appreciated as such by many. Judging by the increase of inquiries respecting it and its culture, I trust that its cultivation is gradually extending. *Jno. Roberts.*

FRUIT JUDGING.—The remarks of "Cornubian" (p. 61) on this subject, so far as they refer to the Royal Horticultural Society's great autumn fruit shows, serve to make clear the meaning of his note in the *Gardeners' Chronicle* of January 1, p. 12. Consequently, I have referred to the report of the fruit show, held under the auspices of the Royal Horticultural Society at the Crystal Palace the first week in October, 1896, and published in the Society's *Journal* the following month, wherein we find classes were provided for leading varieties of Pears coming in for use during the six months following, the date on which the show was held, as pointed out by "Cornubian." Among these may be mentioned *Josephine de Malines*, ripe from February to April, twenty dishes being shown. *Easter Beurré*, January to March (twenty dishes), *Bergamotte d'Esperen*, January to April (fourteen dishes), *Doyenné du Comice*, November to December (thirty-nine dishes), *Winter Nelis*, November to January (twenty-five dishes). With regard to the above-mentioned and similar varieties of the Pear being staged in October in classes provided for them in the Royal Horticultural Society's schedule, or for that matter in any other society's schedule, I have no hesitation in saying that the question of ripeness cannot possibly be considered in making the awards in these classes; the finest all-round specimens of the respective varieties should, undoubtedly, be awarded the prizes offered. But in the case of Pears ripening in October, the case is quite different, the exhibitors staging ripe fruits of equal size and shape as those of the same varieties, but not ripe, taking the prizes as a matter of course. This is where the advantage of forwarding the ripening period of the fruit by one or two weeks, northern growers are unevenly matched in entering hardy fruit competitions with southern craftsmen. In like manner Pears may be ripened a week or ten days before the usual time, in order to prevent a break occurring in the daily supply of ripe Pears. The best and finest-coloured specimens of *Marie Louise* Pear which came under my notice were artificially ripened from the end of September, and until they ripened in the ordinary way on the shelves in the fruit-room a few weeks later, during which time several dozen fruits were in daily demand, and elicited frequent remarks upon their colour, the goodness of flavour, and earliness. "Cornubian" is not very clear in his remarks on the best collection of fruit being the one which covers the longest season, providing the quality is of the best throughout, adding, "and the sooner judges cease to be sensible to the

glamour of mere ripeness, the better and less artificial will be the methods of exhibitors." The "best collection" must necessarily always include ripe fruit throughout the period of time covered. Fruit-growers should never send "dead-ripe" fruit to a show nor to the dessert-table, because, as a rule, such fruit is unfit to eat the day after it has been shown or sent to the house. Fruit which is "dead-ripe" may properly be described as "over-ripe." There is a distinct and important difference between the flavour of ripe and "dead-ripe" fruit, a fact of which surely "Cornubian" must be aware. *H. W. W.*

FRUIT-TREE LABELS.—In reference to Mr. J. Mayne's remarks on this subject, and the editorial foot-note (p. 60), I beg to say that the lead labels there referred to, or, rather, similar ones, had been used by me during the twenty-five years I was at Longford Castle Gardens; and I should say—judging by the condition of the oak-case containing holes for the reception of the twenty-six letter-punches and ten numbers, in 1871, when I took charge of the said gardens—had been in use by my predecessors fifty years before. They are exactly the same as described by Mr. Divers in the previous Hardy Fruit Calendar. The reason that I did not refer to these practically imperishable labels in my [Calendarial notes for Dec. 25 is, that I was not aware of their being in commerce. "Horticultural Sundriesmen" would do well to obtain a supply of "letter and number-punches," and then to advertise them in the *Gardeners' Chronicle*. *H. W. Ward.*

THE NATIONAL CHRYSANTHEMUM SOCIETY.—As some strictures have recently been made in your columns in reference to the lack of encouragement given to the culture of the Chrysanthemum by the foregoing Society, permit me to give a few figures I submitted to the committee at its last meeting. The early Chrysanthemum show takes place on September 8, 7, and 8 next. At that exhibition the Society offers £15 7s. 6d. in money-prizes for early-flowering varieties, and the value of £6 13s. 6d. in Medals, this being their actual cost, exclusive of engraving, for all the Medals awarded by the Society are engraved at the cost of the Society before being handed over to the winners. There are in addition the Medals awarded to miscellaneous exhibits, probably representing another £8 or £9. The Directors of the Royal Aquarium give £50 in prizes for *Dahlias* and *Gladioli*, supplemented by £10 from the National Chrysanthemum Society. On October 11, 12, and 13, the Society offers in cash prizes for Chrysanthemums, £59 16s. 6d.; Medals (bare cost exclusive of engraving), £2. Some £8 to £10 worth of Medals will probably be awarded to miscellaneous exhibits. In addition, special prizes to the amount of £8 are offered for cut *Carnations*, and £40 for *Onions* and other vegetables. [What have these to do with Chrysanthemums?] On November 8, 9, and 10, the sum of £248 7s. is offered for cut blooms of Chrysanthemums; £87 5s. for plants, £12 16s. 6d. for table-decorations; fruit, £18; vegetables, £6 15s.; and Medals, £3. In addition, the Directors of the Royal Aquarium offer £30 as special commemoration prizes for cut blooms; there are other special prizes amounting to £12 6s.; and for vegetables, £53 5s. 6d. In addition there are the Challenge Trophy and Holmes Memorial Cups, the Turner Memorial Cup, two other valuable Cups, and some articles of jewellery, representing as offered at the November Show, £461 15s. in cash, and £100 in value; to these may be added £15 in Medals for miscellaneous exhibits. On December 6, 7, and 8, open-class cut blooms, £37 5s.; plants, £23; and to amateurs for cut blooms, £9 15s. Add to this £8 in Medals for miscellaneous exhibits. The Society thus makes itself responsible for £673 12s. 6d. in cash and Medals, in addition to the Medals awarded to miscellaneous exhibits; and Cups, &c., to the value of £100. What conduces so much to the growth of membership of the Society is the fact that four exhibitions are held, in addition to many interesting meetings of the Floral Committee, covering, as I have before stated, "the whole of the Chrysanthemum season." Let me add, that every year witnesses additions made to the schedules of prizes, which annually grow both in bulk and value. *Richard Dean, Secretary.*

A HALL FOR HORTICULTURE.—Mr. M. Todd's communication obliges me to go over once more, the ground I have already covered in regard to this matter. If the conditions tending to success which prevailed in Edinburgh could be secured in London; if there was a Waverley Market adjoining a great

central railway station in the very heart of the Metropolis; if we had what I have ventured to describe as the "homogeneity" of Edinburgh; the support of the municipality; the co-operation of some leading citizens, and a practical monopoly of such an exhibition as that held in the Waverley Market, which is possessed by Edinburgh, then there might be a probability of making a big Chrysanthemum Show pay in London. I can deal with the subject with some degree of confidence, because, although I make myself liable to the charge of needless repetition, I know something of the long list of failures to attract the multitude to flower-shows in London during the past twenty-five or thirty years. The only exception apart from the November exhibition of the National Chrysanthemum Society (which is successful only because it is held at the Royal Aquarium), is the Temple Show of the Royal Horticultural Society, but then there are no money prizes offered, and only a limited value in plate and medals, while some expenses, otherwise necessary, are greatly minimised. And yet this great and attractive exhibition, held by the most renowned Horticultural Society of the day, in one of the most central and delightful spots in the City of London, and easily accessible, at which it is known the finest collections of Orchids and other plants will be seen; with the added patronage of Royalty, realises at the gates in three days only £1,262 14s. 8d., according to the recently published financial statement of the council—merely a small sum more than was taken at the Waverley Market in Edinburgh. Were the expenditure at the Temple Show on the same scale as that at Edinburgh, the financial gain would reach a vanishing point. Then there is the great Fruit Show held in September by the Royal Horticultural Society at the Crystal Palace, unique and instructive in a remarkable degree, and yet the Council have to admit in their annual reports that the "continuance of the show is absolutely dependent on at least £100 being raised by subscription each year towards a prize fund," in addition to the subsidy from the Crystal Palace Company. Let me again ask,—where are the great shows of the Royal Botanic Society and those formerly held at the Crystal Palace? They were abandoned because they did not pay. The Agricultural Hall has been suggested as an appropriate place for a Chrysanthemum show in November; a gloomy, barren, gigantic ice-house at that season of the year, repulsive in the extreme on a dull foggy November day, added to being difficult of access. The Royal Horticultural Society made a praiseworthy attempt in 1893, by holding a most attractive summer show there, and although assisted by a large subsidy from the Directors, could not make it pay; the financial loss to the Directors of the Hall must have been great. Even at Manchester, the Council of the Botanic and Horticultural Society have been driven to the necessity of speculating on the probable closing of the gardens at Old Trafford, the loss to the Society being considerable last year, though £600 less than in the previous year. The Society is discovering that it has to compete with the Belevue Gardens, and is driven to introduce outside shows. The York Floral Fête Committee have set apart for this year, prizes £650, £200 for music, £100 for fireworks, £150 for amusements, and £60 for balloons. These figures are significant. Is it to be wondered at, that those who have had a long and varied experience of London flower-shows, hesitate to embark on financial speculations in relation thereto of a decidedly hazardous character! Mr. Todd is quite correct in stating that "Mr. Dean as representing the Committee of the National Chrysanthemum Society, probably knows difficulties not apparent to outsiders," and all the optimistic prophecies and confident assertions made in your columns, and in those of other gardening papers, fail to draw me from a proper appreciation of these difficulties. They are, to my thinking insurmountable, owing to the manifest lack of public support of London flower-shows pure and simple. *Richard Dean, V.M.H., Ealing, W.* [This discussion must now be closed. Ed.]

VICTORIA MEDAL OF HONOUR.—It will be remembered that at the distribution of the medals at the Drill Hall, on October 26 last, the President of the Society, Sir Trevor Lawrence, in his opening speech, explaining the objects of the distinction, remarked that it would be very distasteful "if the honour were used for trade purposes." On Nov. 11 a circular, from which the following is an extract, was sent out by the Society:—"In awarding the Victoria Medal, the Council unanimously laid it down as a rule, from which no departure, under any circumstances, was permissible, that the distinction was to be entirely a personal one, and was not

to be used in any way whatever for the purposes of advertising." At the Council meeting on Dec. 14, the following resolution was passed, and has since been published in your own and other horticultural papers:—"In the event of any recipient violating the conditions on which the Victoria Medal of Honour was bestowed, by using it for advertising or for the promotion of trade interests in any other way, the name of such offender shall be struck off the list." In addition to this, the following announcement is made in the same journals for the week ending Jan. 15:—"The Council have been consulted as to a proper mode of the use of the Victoria Medal by members of the trade, having decided that the only permissible method is by the letters V.M.H. following the name of the holder of a Medal. No other mention of the Medal can be properly made in any publication pertaining to horticultural trade, or relating thereto." What steps, may I ask, have been taken to put into force the resolution passed by the Council on Nov. 11, and further qualified on Dec. 14? as it is a well-known fact that the honour was announced in trade circulars some time before Christmas. *F.R.H.S.* [Those V.M.H. who are not traders should take measures to prevent the degradation complained of, and induce the Council to take action. *ED.*]

EARLY SWARMING OF BEES.—In the *Gardeners' Chronicle* for January 29, p. 76, I noticed an answer by "Expert" on inducing early swarms. He says, "Examine combs by driving the bees down with smoke;" and in another place he adds, "Give a pint of warm syrup once a week until the flowers begin to bloom." I must say that he is a little in error here. By disturbing hives at this time of year, you run the risk of the bees balling the queen, and by feeding them on syrup so early, you cause them to breed too fast; and when a cold spell comes, say, in March, the bees draw closer together, and leave the outer circle of brood to perish. If there is any doubt about the stores, slip on a cake of candy, with plenty of dry covering, but do not disturb the bees until a warm day in March. *Scotch Expert.*

BENGAL ROSE ABBÉ MIOLAN.—I am sending you a boxful of Roses, not knowing whether Roses are a plentiful commodity or not in England at this season of the year. [Oh, no!] I have quantities here, of the variety Abbé Miolan, a Noisette, as you will see. I have two beds of this variety in the flower garden, and have been enabled to gather blooms all the winter, gathering 100 every week for house decoration; but they do not stand well when cut, although in the beds they look well, and are continuous bloomers if planted in a sheltered position. Of course, the mild weather we are having suits them, as the flowers last longer when cut at this season than in summer. *P. C. M. G., Drumnals Gardens, Larne, Ireland.*

PEAR DUCHESSE D'ANGOULÊME.—The interesting problem which I sought to solve in asking the questions I did has elucidated at least one fact that I wanted, and which I actually anticipated in my suggestion as to the root-pruning having been done already in September, which is some six weeks before the usual time. The real interest centres in the question whether root-pruning done thus early, viz., in September, prompted as it was in this case by absence of fruit, can in any way be connected with a formation of additional flower-buds the same autumn, and not among those visible, as is now stated, on root-pruning. The actual presence of fruit-buds in September renders result of my inquiry somewhat vague on that score, and it would be interesting to learn what experience has been gained, and how early root-pruning has been so successfully accomplished elsewhere. It may be useful to remember in this connection that root-pruning carried out early in November would not show any results before the second autumn after the operation. Of course, the fact that fruit of remarkably good quality can be grown in this country is very satisfactory. I heard of the success at Bournemouth, but am unacquainted with details. If the methods adopted for such results in various districts can be formulated and be successfully applied to all good varieties of Pears, it would be the first step in the direction of ousting the foreigner from British markets. In this connection it may be remarked, that France sent us in 1896 about 250,000 bush. of Pears, and Belgium half that quantity; among which the former country supplied largely Duchesse d'Angoulême, Beurré Diel, and Louise Bonne; and the latter Beurré Hardy, &c., all of which we could grow at home, and probably without the expense of a wall, if only

well-sheltered plantations were made on high ground, out of the reach of spring frosts—a good reason for which is furnished by the fact of the thermometer with, for instance, +26° (=6° of frost) Fahr. on low levels (with possibly only +20° on grass), will simultaneously mark about +36°, or 10° higher at 100 to 200 feet altitude close in the rear, with an entire crop destroyed in the former, whereas complete immunity occurs in the latter case. The relative dampness of our climate is a convertible term for spring hoar frosts that kill the Pear blossom. Dew is heavy on grass and low herbage on low lands, and relatively absent on the higher grounds referred to; and the thermometer might fall to 32° even—nay, to 30°, and lower—without prejudice to the fruit-bloom, because there is little dew to convert into hoar-frost. If so, this double guarantee against risk from late frosts be added, the selection of a site sloping between S.E. and S.W., with natural or artificial shelter from E. and N.E. winds, that may yet ruin an early bloom, risk from frost seems to cease to play a part in our Pear-economy. The Continent of Europe being less humid than our Isles, risk of frost is lessened. Mr. Ward's belief that Pears from walls are invariably superior to those grown in the open must not be accepted literally. I certainly prefer all early Pears grown in the open, and some of the later ones are at least equally good in the South of England. Where Mr. Ward dissents from my statements, in another case he only quotes half the sentence, omitting, for instance, "as grown in this country," where I disparage this variety as here grown, adding about the splendid examples sent us annually from France. I think this Pear is delicious as sent us from France in September in tons for many years past; and yet we can, apparently, grow it at home of equal good quality. It will be interesting to learn towards next autumn what crops were gathered from the various trees treated, as we are told, similarly in that quarter. The result may be an excellent lesson for all growers. The agricultural returns for 1897 to hand since writing the foregoing show the total importation of Pears to have been 1,050,000 bushels against rather under 500,000 bushels in 1896, and about 400,000 bushels in 1895. These figures accentuate the foregoing remarks. *H. H. R., Forest Hill.*

THE MILD WINTER, CO. CORK, 1897-98.—This is a most extraordinary season. The following March-flowering Daffodils have been for more than a week in bloom: Androcles, Countess of Annesley, Early Bird, this latter since Jan. 17; North Star, Saragossa, Ard Righ (very fine), of which I send specimen; Cervantes Pallidus præcox, Golden Spur, Henry Irving, the common double Daffodils are a sheet of bloom, and many others. Then as to spring flowers, Snowdrops, Crocuses, Chionodoxa sardensis, Polyanthus of all sorts, Primroses, Omphalodes verna, flowering Currants, Azara microphylla, three sorts of Laurustine, Sparmannia africana, Mahonia japonica, Pyrus japonica, Jasminum nudiflorum. The neighbours Bees are crowding round the bloom of Prunus Pissardi, drinking up their sweet juices. In a sheltered spot Veronica Traversii, Potato stalks in bud, and Lenten Roses are a mass of bloom. During my more than sixty years of life, I do not remember such a season, and for fifteen years' record with Daffodils, no registry like this season of 1897-98. *W. Baylor Hartland, Ard Cairn, Cork.*

CONTINUOUS FLOWERING OF PANCRACTIUMS.—As a grower of, among other things, Pancratium blooms for market, I think it may interest some of your readers to know that my Pancratiums have this morning (February 1) completed an unusual if not altogether unprecedented period of flowering. On February 1 of last year I cut my first bloom of the season, and have continued to cut them every morning for 366 days. Those blooms opened on Sundays were cut and kept for Monday's market. I consider it all the more remarkable as all of the plants are grown in one house, viz., a Eucharis-house, consequently there is no bringing batches forward. The plants are still throwing up fresh flower-spikes. *Henry Porter, Barkfield Nursery, Freshfield, Liverpool.*

ROYAL BOTANIC GARDENS, CEYLON.—The first three "Circulars" published have reference to the Cacao-canker, which is supposed to be due to the attacks of a root-fungus. Preventative treatment is all that can be afforded; indeed, at present but little seems to be known of the fungus.

SOCIETIES.

RICHMOND ALLOTMENTS ASSOCIATION.

JANUARY 4. — The annual meeting of the Richmond Allotments Association took place on Friday evening at Queensbury Chambers, Richmond, the President, Mr. F. W. DUNBLEBY, J.P., being in the chair. The report of the Association stated that there had been an increase in membership during the year. The prize fund did not come up to the expectations based upon the experience of former years, but this was attributed to the many calls made by the Jubilee. It necessitated reducing the number of prizes at the annual exhibition.

The support received from the Richmond Town Council and the Richmond Athletic Association, and the kindness of the Manager of the Association Ground were acknowledged. The accounts showed that the balance of 18s. 1d. with which the year commenced had been extended to £2 15s. 1d. Mr. F. W. Dunbleby, J.P., was re-elected President, Mr. Nevard Hon Treasurer, and Mr. Rogers as Hon. Sec.

EDINBURGH FIELD NATURALISTS' AND MICROSCOPICAL.

JANUARY 26.—At a meeting of this Society on the above date some notes on "The Natural History of the New Hebrides Islands" were communicated by the Rev. J. H. LAWRIE, one of the members, who was for many years a missionary on Aneityum.

In referring to the vegetable productions of the islands, Mr. Lawrie said that the staple food of the natives is Taro (*Caladium esculentum*), and Yam (*Dioscorea sativa*), the former grown on the swamps, and the latter on the dry volcanic districts. As food, these are looked upon by the natives in the same way as we do Potatoes, flour, or meal. Bananas and Sugar-cane are also much cultivated. Coffee, Oranges, and Pine-apples have been introduced, and it has been found that whatever thrives in the West Indies may be cultivated with profit in the New Hebrides. Copra, or the dried kernel of the Cocoa-nut, is largely exported for manufacture of soap, pomades, and other useful articles. The natives do not regard arrow-root as a food; but being of the finest quality, it is manufactured and sold for payment of their bibles and churches. Kava, an intoxicating beverage, obtained from the root of *Macropiper methysticum*, is a necessary accompaniment of all the native orgies. One of the most useful trees is the Pandanus, or Screw Pine, the leaves of which are made into dresses for the women, wrapping bands for the men, sorcerers' bags, food-baskets, sleeping-mats, and canoe-sails. The war-clubs and bows are made from species of *Casuarina* and *Acacia*. The principal food-bearing trees indigenous to the islands are the Cocoa-nut (*Cocos nucifera*), the Bread-fruit (*Artocarpus incisa*), Rose-apple (*Eugenia pimenta*), and Papaw-apple (*Carica papaya*). Crotons, Dracenas, Hibiscus, and other ornamental plants grow luxuriantly. Among Cryptogams, 126 species of magnificent Ferns have been found on Aneityum alone.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

FEBRUARY 1.—The monthly meeting of this Society was held on the 1st inst., at 5, St. Andrew Square, Edinburgh, and the chief attraction of the evening was the lecture by Mr. Jones, of Lewisham, on "Chrysanthemums and their Culture."

The Chairman, Mr. Dadd, who is always happy in his choice of phrases, exactly expressed the feeling of the meeting when, in introducing Mr. Jones, he said, that to think of the Chrysanthemum was to think of Mr. Jones, who, perhaps more than anyone living, had done most to popularise and improve the cultivation of these beautiful flowers.

The preliminary business consisted in passing the minutes of the annual meeting, which showed the Society to be in a most prosperous condition, and in the reception of twelve new members. The exhibits on the table consisted of a choice glass of Daffodils and Narcissus, fringed with *Acacia dealbata*, shown by the President; and some very chaste wreaths of *Clematis indivisa*, by a member of the Association.

BEES IN A BLOCK OF STONE.—A correspondent writes us to insert the following cutting from his local paper as being of interest to bee-keepers. During the progress of work upon a new church, which is being erected by Mr. E. C. Jordan, at Crindan, Newport, a remarkable discovery was made. The masons were sawing through a piece of Bath-stone from Corsham quarries, near Bath, when they came upon a small cavity lined with spar. Such cavities are not unusual, but the surprise of the workmen can naturally be imagined when it was found that inside were six bees. Apparently (the sections

were brought to the *Newport Argus* Office for inspection there was no entrance to the cavity before the saw cut into it, and the presence of the bees is a mystery. They were alive, and two of them were still quite active when brought to the *Argus* Office in a small box by Mr. Page, architect, who is in charge of the works for Messrs. Graham, Hitchcox & Co. He was on the spot when the discovery was made, and he at once captured the bees, and secured the block of stone as a curiosity. The question is, how did the bees get there? *Bee Journal*.

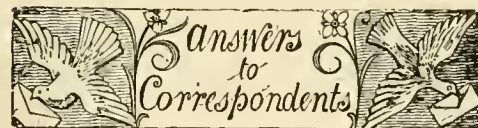


[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.					No. of Rainy Days since January 2, 1898.	Total Fall since Jan. 2, 1898.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 2, 1898.
	Above (+) or below (-) the Mean for the week ending January 2 nd .	Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since January 2, 1898.	Below 42°, difference from Mean since January 2, 1898.				
0	8 +	27	0	+ 54	- 121	0	25	6.0	7
1	9 +	31	5	+ 62	- 120	6	13	1.2	17
2	6 +	32	11	+ 80	- 124	5	8	0.8	17
3	4 +	11	23	+ 34	- 119	4	8	0.8	16
4	4 +	21	13	+ 47	- 130	6	7	0.6	4
5	4 +	16	4	+ 13	- 133	7	6	0.5	5
6	8 +	34	0	+ 71	- 116	12	10	3.2	7
7	6 +	25	0	+ 64	- 125	4	14	2.9	8
8	4 +	22	0	+ 64	- 97	8	11	1.7	6
9	6 +	31	0	+ 62	- 98	6	15	2.0	11
10	6 +	44	0	+ 90	- 85	7	12	2.7	12
* 2	2 +	28	0	+ 67	- 46	8	12	0.7	4

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.



BOOKS: L. C. Mr. A. D. Webster's *Hardy Ornamental Flowering Trees and Shrubs*; published at the office of the *Gardening World*, 1, Clement's Inn, W.C.—B. P. You might perhaps obtain *Botany for Beginners* at one or other of the second-hand bookstalls. With this and Darwin's *Elements of Botany*, published by the Cambridge University Press in 1895, you will have good elementary information on Systematic and Structural Botany. Five years horticultural experience is necessary before entering Kew, but no definite botanical knowledge, which may, however, be easily acquired whilst at Kew. Application should be made to the Curator. See our issue for the 22nd ult., p. 56.

BOTANICAL NAMES: C. Goulter. *Faya* (or *Myrica*) *fragilera*, Canary island Wax-tree; *Sicyosperma gracile* (*Cucurbitaceae*), annual climber from Mexico; *Echinocystis lobata* also a climber, of the same Nat. Order as the last; and *Paspalum elegans* synonymous with *P. tenellum* or *P. membranaceum*, an ornamental grass, are good names.

CORRECTION.—We are requested by the publisher to say that in the advt. of "Izoline," p. vii., in last issue, instead of Feb. 9, 1892, read Feb. 12, 1898.

CRICKETS IN THE GLASS-HOUSES: W. J. S. Enquire of the horticultural sundriesmen—they sell traps and other means of destroying these pests; or dig out a hole in the floor of each of your glass-houses and sink a cloche or big bell-glass, or a 12-inch flower pot bottom uppermost, leaving the holes or hole uncovered and putting some odorous fruit inside, and you will trap thousands.

CUCUMBER ROOTS: W. G. The plants are affected with eelworms, for which there is no known cure. Please send specimens of the insects you have found in the soil, and we will endeavour to identify them.

DUNBAR REGENT POTATO-SETS FOR PLANTING: X. Y. Z. This variety, owing to its liability to take the disease, is going out of cultivation, in favour of the Bruce, Jeanie Deans, Lady Fife, and others, which enjoy comparative immunity from attack. You might learn from Mr. A. Findlay, Markinch, Fife, where-sets can be obtained.

FRUIT-TREES FOR A FENCE WITH A DUE SOUTH ASPECT IN ESSEX, &c.: *Amateur*. Pears—Beurré Rance, Easter Beurré, Van Mou's Léon Le Clerc. If you would like an early variety, plant Doyenné du Comice or Ben Chretien. The aspect is too warm for most varieties of Apples, but you might plant Newtown Pippin, Reibette du Canada, and Washington, which are excellent, but sometimes do not ripen thoroughly in this country away from a wall. Of Plums, plant Reine Claude de Bavay and Reine Claude Violette, both of the Gage type, and very good eating; the others might be Jefferson, Coe's Golden Drop, and Late Transparent; plant forthwith on free stocks. The Pears and Apples should be trained horizontally, and the Plums fan-shaped. Cherry-trees may be transplanted at this season.

LEAFING OF THE OAK: *An Old Colonist*. In an article entitled "Indications of Spring," published in these columns on April 7, 1888, and embodying the observations of Robert Masham, Esq., of Stratton in Norfolk, extending over sixty years in the case of some of them, we find that in the interval of fifty-four years the Oak at that place was earliest in leaf on March 31, 1750; and latest on May 20, 1799, a difference of fifty days. The medium date was April 26, 1757. R. Masham, who was a F.R.S., died in 1797, aged ninety years.

LILIUM BAKERI, ETC.: D. G. 1, L. Maximewiczii var. Bakeri, Elwes; 2, L. Bakerianum, Collett and Hemsley; 3, L. Bakeri, Purdy, are three different plants. 1, is a Japanese Martagon with bright scarlet flowers—it is figured and described in the great monograph of Elwes; No. 2, comes from Upper Burma, and is allied to the Bermuda Lily, with large funnel-shaped white flowers. It is figured in the *Journ. Linn. Soc.*, vol. xxviii. No. 3, is described in *Erythraea* for Oct. 1897, p. 104. It is a scarlet Martagon nearly allied to L. columbianum, inhabiting Washington territory and British Columbia. All three are in cultivation. J. G. B.

MANURE FOR MAIDENHAIR FERN IN SMALL POTS IN A SITTING-ROOM: E. N. W. Ferns dislike manure, and it is only advisable to afford it in the growing season, and in very mild doses. A bushel or two of spent Mushroom-bed manure, and 1-yr.-old tree-leaves may be put into a tub containing about 40 gallons of rain-water, and in about a week afterwards it will make a liquid-manure that answers very well if diluted with rain-water. The dung may be left out if the odour is found to be too strong. Some very robust species of Ferns may be afforded cow-dung and soot-water, taking the precaution to use it in a clear state, otherwise the soil will be closed to the air; but this would be scarcely allowed in a sitting-room, unless the manure-water is allowed to drain away from the pots out of doors. Nitrates of soda in minute doses sprinkled on the soil once a fortnight would do good. A thimbleful to a 6-inch pot is enough to use at one time; first affording the Ferns sufficient clear water to wet the ball throughout, and then affording a slight second application of water in order to carry the nitrate or some of it to the roots.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—J. L. Send when in flower.—H. W. 1, *Elæagnus macrophyllus*; 2, *Elæagnus pungens variegatus*; 3, *Euonymus*

japonicus var.—J. W. K. *Trachystemon orientale*, a plant nearly allied to Borage; it has been called Nordmannia, Psilestemon, and Borago. The name we give you is that adopted in the standard *Index Kewensis*.—Alphus. *Lycium sinense*, *Saxifraga longifolia*, so far as we can tell without flowers.—G. R. The flower sent is of a very pretty variety of *Cattleya Trianae*; the rich orange in the throat is peculiar.—R. G. R., *Limchouse*. 1, *Pholidota imbricata*. The other two are varieties of *Dendrobium undulatum*.—L. C. An *Eria*, but which species it is impossible to say from the specimen sent.—F. G. *Cypripedium venosum*.—J. W. *Fuchsia triphylla*.

ON A WALL FACING SOUTH-WEST *Amateur*. For growing on the wall, house open to the sun from south-west, you might plant Pears Jargonelle, Marie Louise, Winter Nelis, Marie Benoist, and Glou Morceau, all excellent varieties; in succession from August to January.

ORCHID INJURED: F. K. We believe that the mischief arose from the emanations from the wood used in the staging. The plant has every appearance of having been injured by poisonous fumes.

PATENT ARTICLE: R. G. Jarrett. See answer to "Seed-Drill."

PLANTS FOR PLANTING ON THE SANDY BANKS OF A BRACKISH STREAM: *Banks*. *Tamarix germanica*, *Salix* in variety, *Alnus* in variety, *Lycium barbarum*, *Hippophae rhamnoides*, *Atriplex Halimus*.

SEED-DRILL, ETC.: G. A. You should make application at the Patent Office (on any day from 10 to 4), 25, Southampton Buildings, W.C., bringing the specification of the invention, and you will then be enabled to ascertain if a tool similar to the one you desire to obtain a patent for has been so protected.

SHALLOW FRAMES AND FOUNDATION COMB: M. T., I. O. W. 1. Will shallow frames that were used last year do again?—Yes, but they must be properly cleaned. A good plan is to boil them well in soda-water for twenty minutes. No frames that are very dirty and old should be used again; it is much better to burn them and buy new ones, seeing they are so cheap now. 2. Will the same foundation that is used for brood standard frames do for the shallow frames, or that which is used for the sections?—The same foundation should be used for shallow frames as is used for brood frames, but secure it a little thinner, if possible. Section comb will not do for either shallow or brood frames; being so very thin, it would not stand the extractor, and even if it did, you would get a large waste in honey, and break the combs so much that they would be useless for returning to the hive.

SHRUB TO GROW IN A TUB IN AN OUT-OF-DOOR AVIARY, ALSO FERNS: E. N. W. *Colletia cruciata*, *Quercus ilex*, Irish Yew *Thuja sibirica*, Virginian Red Cedar, or Sweet Bay. The birds are less likely to peck the leaves and buds of these plants than *Euonymus* and the *Rhododendron*. You might give a trial to the common and crested forms of Hart's-tongue Fern, *Scelopendrium*; Wallrue, *Ruta-muraria*, forms of *Blechnum spicant*; but we fear that no Fern will be safe from depredation. We do not suppose the birds would touch a Metake Bamboo plant.

SPRING PROPAGATION OF LAVENDER: G. M. Take slips, if possible, with roots, in March and April, and plant these in rows 1½ to 2 feet apart, and 1 foot apart in the rows, and afford water till the plants are established. The plant does best in a light warm soil.

STRAWBERRY CULTURE: *Smith*. You will find articles giving the chemical constituents of Strawberry plants, and suggestions as to the best means of supplying these in the form of manure, in the *Gardeners' Chronicle*, October 24, 1896, p. 489, and November 14, 1896, p. 590.

VINE: A. G. The Vine having lost all of its roots owing to the stagnation of water in the soil, had better be rooted out, recovery being well high impossible, and the wood sent shows it to be so.

COMMUNICATIONS RECEIVED.—S. T., Cardiff.—W. Morgan.—S. K.—H. M.—F. N.—H. R. R.—W. A. C., York.—C. L.—R. D.—L. C.—W. S.—A. D.—C. T. D.—R. P. B.—J. Morris.—N. K.—J. C.—A. J. L.—J. O.—E. J. L.—W. E. G.—W. H. D.—D. M.—M. H.—E. Austrad.—W. G.

PHOTOGRAPHS, SPECIMENS, ETC., RECEIVED.—W. H. D.

(For Markets see p. xi.)



THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 12, 1898.

NOTES FROM A LITTLE CORNISH GARDEN.

(Continued from p. 33.)

JANUARY.—Owing to the exposed situation of my garden, I am apt to receive some stern disappointments at this season. Last month, by means of a deceitful blandness, numerous leaves were induced to start from their buds, and many flowers to show their inexperienced faces. But these rash firstlings were "no sooner blown but blasted" by the resistless hurricane:—

"The young green leaflet's harrier, sworn
To strew the gardee, strip the shaws,
And show our spring with banner torn."

However, several flowers have managed to retain a healthy appearance, chief among these being the Primroses, both wild and tame. It seems to me that none of the garden Primroses approach the yellow one in beauty and delicacy of colouring. Herrick, in his persistent search for floral similes to the various conditions of his "virgins," treats the Primrose unfairly in comparing its colour to that of the skin of those suffering from chlorosis:—

"Virgins, time past, known were these,
Troubled with green sicknesses;
Turned to flowers, still the hue,
Sickly girls, they bear of you."

The yellow of the Primrose is utterly removed from any suggestion of sickness or disease. On the contrary, it is pre-eminently one of the "fresh" colours; it goes with clean print dresses, sweet milk, ruddy cheeks, and "ideal" country simplicity—a very different thing, it may be remarked, from any real rural product. The Primrose's scent is like its colour, delicate and fresh. No words can approach a description of these qualities of scent and colour. May we fancy that some beautiful fairy, having feasted on rose-petals, sweet wild herbs, and the south-west wind, breathed her fragrant breath on the lovely Primrose blossom?

Primroses are among the easiest of all plants to grow. They do best in the shade of deciduous trees, and I find them satisfied under these conditions with the poorest and driest of soils. Judging from their leaves, one would, of course, expect them to stand a dry situation well. The leaves are corrugated, hairy, and thick, unlike those of such plants as *Pulmonaria officinalis*, *Cyclamen*, and *Hepatica triloba*, which are natives of damp, shady places, and have to get rid of a large quantity of moisture under adverse conditions. These latter, therefore, have mostly large thin-leaf surfaces, naked of hairs, and often have their leaves mottled owing to the spongy parenchyma being more open-weave in some places in order to allow water to pass off readily. The Primrose almost partakes of the character of a bulbous plant. Its thick starchy root contains as good a store of last

year's solar energy as does bulb of *Snowdrop* or *Crocus*. Hence its earliness in showing leaves and flowers which it could never have produced by the aid of this year's sun alone.

Since Christmas day my winter Aconites have been sending up experimental blooms, but I do not anticipate any considerable floral effect from them for another fortnight or more. I like to watch the daily lengthening for eight days of the yellow dome, one of whose functions is to protect the ripe pollen from rain. As the short outer row of stamens first ripens, the short sepals suffice for its protection, but day after day a longer and more central row ripens and requires protection, and each day the sepals grow longer to meet the new need. In spite of the pretty little nectaries, I do not think many bees will visit them at present. As most of the early spring flowers are produced from last year's reserve store of nutriment, they commonly appear before the leaves are well developed. They spend last year's savings, and are able to cut a fine figure before most plants have begun even to accumulate the wherewithal to produce flowers.

The winter Aconites will give my first mass of colour in the New Year. I like a garden which has always some brilliant display in evidence, as well as containing interesting and beautiful single plants. I am looking forward to the following "blazes" in my garden with considerable interest: Winter Aconites, yellow Primroses (under a row of trees), *Crocuses*, *Tulips*, *Anemones*, *Wallflowers*, *Escholtzias*, *Silene* (carpeting my Rose-bed), *Poppies*, and *Sweet Peas*.

I am continually receiving severe criticisms of my gardening when I walk in the country. The hedges and meadows, hillsides, and even ditches, make constant rude remarks, and invite me to look at them and learn. I endeavour to take their advice. If we are to have any originality in our gardens, we must study natural plant effects—not necessarily to copy them. It is not, of course, true that everything which Nature produces is pleasant to the cultivated taste, for Nature has a good many other prejudices to consult besides those peculiar to man. The dung-beetle's view of beauty, for instance, must not be forgotten. Then it is that the gardener should study Nature constantly and closely, but should remain slightly critical and selective. The last thing the hedges told me was, that I had no business to have so much bare earth showing in my garden in January. My *Saxifrages* are growing into nice clumps, it is true, and my *Wallflowers* present me with a very nice shade of green; my *Periwinkles* cover a little stony-bank with glossy leaves, and show a number of early blue flowers with the most remarkable of pistils; my little clumps of *Cyclamen* are a mass of marbled foliage; and little green points preceeding from various buried bulbs dot the ground at frequent intervals. All this is true, yet the hedge's criticism retains its force, so I have written off for a selection of dwarf evergreen plants, *Veronicas*, *Ericas*, *Kalmias*, and the like, as well as a few more varieties of *Polystichum* and *Polypody* Ferns than those I already have.

The Christmas Roses are still, of course, in their glory, and remain the one flower which seems really happy out-of-doors at present. Still, the gardener's mind must now be chiefly anticipant; eager for effects to come, rather than having any very great grounds for joyfulness in the present display afforded by his garden. Now, one may study books and catalogues by the light of the lamp and the fire's warmth, and the genuine gardener will find that his hobby often helps his reading, as his reading most certainly helps his capacity for extracting pleasure from his garden. For I hold that the most fortunate gardener is he who is a bit of a botanist, a bit of an artist, a humanist, and a lover of earth-digging. One other thing is necessary to the fortune of the gardener, and that is a moderate-sized garden in which he may ply his craft. *Harry Roberts.*

WILLIAM CATTLEY.

VERY little is generally known of the man after whom Lindley named one of the most magnificent of the genera of Orchids. Lindley himself (*Collectanea Botanica*, 1821, plate 33), says in reference to the dedication:—"Our drawing was made by Mr. Curtis from a specimen which flowered in Mr. Cattley's stove last November. Without exception, it is the handsomest species [*C. labiata*] of the order we have ever seen alive, and we have on that account the greater pleasure in publishing it, as it has given us an opportunity of paying a compliment to a gentleman whose ardour in the collection, and whose unrivalled success in the cultivation of the difficult tribe to which it belongs, have long since given him the strongest claims to such a distinction." In Nicholson's *Dictionary of Gardening*, Cattley is described as a "famous patron of botany, and one of the most ardent collectors of rare plants of his day." In Johnson's *Gardeners' Dictionary*, he is designated, "a magnificent patron of botany;" but the name of Cattley does not appear in Britten and Boulger's *Biographical Index*, and I understand he is not to be included in the forthcoming supplement to that most useful work, though his claims to a place are, in my opinion, equal to those of many others. Possibly, however, this note may induce the compilers to change their minds.

Cattley's garden was at Barnet, and he must have had a very fine collection of plants, for besides the Cattleya, the following plants figured in the *Collectanea* were from his garden: *Vanda toretifolia*, *Oxyanthus speciosus*, *Psidium Cattleianum*,* *Metrosideros vera*, *Cephaelis calycina*, *Puschkieia scilloides*, *Ornithogalum fimbriatum*, *Cypripedium insigne*, *Vanda multiflora*, and *Sarcanthus rostratus*. These were out of a total of forty plates. I have not found any biographical sketch of Cattley, though it is probable one exists in the *Gentleman's Magazine*. There is no doubt, however, that he was intimately associated with Lindley in some of his other early works, and that he had a large collection of drawings of plants. Lindley's *Digitalium Monographia* (1821) was illustrated by Ferdinand Bauer, "penes Gulielmum Cattley." This work is dedicated to Cattley in the following terms:—

"Viro generoso Gulielmo Cattley, armigero, Societ. Lion. Lond. et Hort. Sodali, Botanices Scientiæ callentissimo, Patrono Nulli secundo, et, quod maximi ducit, amico suo optime, D.D.D. Auctor."

Lindley was not a man who used complimentary language of a fulsome character, and I think we may assume that Cattley, although no great contributor to botanical literature, was more than an amateur gardener. There is at least one other botanical work with which Cattley's name is associated. It is generally known as Braam's *Icones Plantarum*. The full title is *Icones Plantarum Sponte in China nascentium, c. Bibliotheca Braamiana excerptæ*. London, 1821. An editorial note runs thus:—"Icones Plantarum e quibus tabulæ sequentes excerptæ sunt, olim in China celeberrimo Van Braam summâ curâ collectæ, nunc in bibliotheca artium fautoris eximii Gulielmi Cattley armigeri reponuntur." There is also a second copy of this work in the Kew Library, dated London, 1818, and having a lithographed title page, "*Icones Pictæ Indo-Asiaticæ Plantarum excerptæ e codicibus Dem. Cattley.*" Following the title-page is an "advertisement" signed by Cattley. There is no other letter-press, and the plants, which are mostly now familiar, are unnamed. Among them are *Dicentra spectabilis* and *Rosa Banksie*. Should I succeed in finding anything more definite concerning this work I shall publish it, together with a full list of the plants figured. Mr. B. Daydon Jackson has kindly looked up the Linnean Society's records, from which we learn that Cattley was elected a Fellow in January, 1821, and reported dead May 21, 1842. *W. Botting Hemsley.*

* Cattley had previously contributed a note on this plant to the *Transactions* (iv. p. 315, pl. 11) of the Horticultural Society of London, where also there is an excellent coloured figure of the plant.

NEW OR NOTEWORTHY PLANTS.

KÆMPFERIA ETHELÆ (*J. Medley Wood, n. sp.*)*

I SEND by same post a pencil sketch reduced, a coloured drawing natural size, and description of a new species of *Kæmpferia*, which has flowered in these gardens (fig. 34). The original plant was brought from the vicinity of Massikessi by Mr. Reuben Beniug-field, and the plant was given to us by Mr. Jas. Benningfield, in honour of whose wife I have named it.

So far as I am aware, it is very much the most showy of the genus, and will well repay cultivation. The flowers are produced in the early spring, while the leaves are not fully grown, and therefore are very conspicuous. The coloured drawing of the flower is exactly natural size, but I regret that it does not fully represent the beauty of the flower, and only gives an idea of what it really is. I have called it peach, but in drying the flower, the blue in it is very conspicuous, and probably the colour would be better described as light purple. The root-stock is tuberous, irregular in shape, and with a strong aromatic odour. Stem leafy, at the time of flowering 6 to 8 inches high, afterwards lengthening to 2 to 3 feet; leaves oblong-lanceolate, clasping the stems by their long sheaths, the blade of the uppermost ones 10 to 14 inches long, lower much shorter, 2 to 2½ inches wide in the central portion, mid-vein stout, lateral very oblique; flowers solitary, radical; calyx tubular, splitting in front half-way down; corolla hyaline, white, three-parted; segments linear-oblong, acute, with central vein, and four to five lateral ones on each side, 2 to 2½ inches long, 6 to 8 lines wide in central portion; stamens unequal, three-lobed, lower lobe ovate, bilobed for two-thirds of its length, and strongly recurved, 2½ to 3 inches long, 2½ to 3 inches wide, lateral ones oblong, erect, peach-coloured, darker at outer edge, and becoming lighter towards centre of flower; labellum with a broad yellow crest, which reaches nearly half-way down the tube; stamen one, anther two-celled, a little curved, filament widened and thickened, connective produced into an oblong petaloid lamina, which is a little contracted in the upper portion, and lacerate at apex, 2 to 2½ inches long, 5 lines wide; ovary three-celled, many-ovuled.

STERNBERGIA MACRANTHA (FIG. 35).

Sternbergia lutea, already well-known in gardens, is a very fine plant, which flowers freely in the open ground from October till January; and *Sternbergia macrantha* is a still better species, the flowers of which are of a bright yellow colour, and twice the size of those. This species was introduced into commerce by Mr. Siehe, at Mersina, who found it in the Cilician Taurus. *U. D.*

KEW NOTES.

JASMINUM NUDIFLORUM.—No colour, it seems to me, is so effective during our dull, sunless, midwinter days as a bright and glowing yellow, and no plant provides it better than does this *Jessamine*. We have a specimen planted against a south-west wall, and covering some 12 square yards of space, which has been in flower more or less since November, but is just now at its very best—every one of its myriad branches a graceful, pendent wreath of blossom. Even in the open, away from a wall or other protection, and merely a sprawling shrub, it is very pretty. It was one of Robert Fortune's introductions from China.

* *Kæmpferia Ethelæ*, n. sp.—Radix tuberosa, aromatica; folia oblongo-lanceolata, unplexicaudata, laminae superiores, 10–14 poll. longae, inferiores multo breviores, 2–2½ poll. late in media parte, vena media robusta, lateralibus venis obliquis; flores solitarii radicales; calyx tubulosus antice diffidens; corolla alba, hyalina, 3-partita, segmentis linear-oblongis, acutis, cum vena media et 4–5 venis lateralibus utraque in parte, 2–2½ lin. longis, 6–8 lin. latis, in parte media; staminodiu ovato, trilobato, recurvato, lobis lateralibus oblongis, erectis, pallide roseo-purpureis, cum lata crista lutea; lobi antheræ paullo curvaturæ, connectivo producto cum lamina oblonga petaloidæ, paullo constricta, in parte superiore, et lacerata apice, 2–2½ poll. longa, 5 lin. lata.

THE MEZEREON.

There is an autumn-flowering variety of *Daphne Mezereum* called *grandiflora*, or *autumnalis*, which is in flower by October, and keeps on up to the present time. But the typical plant generally flowers about the end of February, and on through March, although many of our plants are already in full bloom. The white variety (*alba*) does not seem to be so forward as the red-purple type. The *Mezereum* is alike desirable for the beauty of its flowers, and for their delightful fragrance, yet it is by no means plentifully represented in gardens. This, probably, is due, in a great measure, to neglect in keeping up a succession of young plants, which it is necessary to do on account of the comparatively short-lived nature of the shrub and its propensity to decline in vigour after once reaching its full size. It grows wild in several parts of Britain, but is not believed to be a true native.

CHIMONANTHUS FRAGRANS.

It is scarcely necessary at this date to enlarge on the merits of this shrub. For 100 years, at least (it was introduced from Japan in 1776), it has held a high place in the esteem of gardeners. On old garden walls in long-established places especially, fine specimens may be seen. There is one at Glasnevin, which Mr. Moore sends word is magnificent this year. Its chief recommendation, of course, is the delightful fragrance of its blossoms, which in colour are dull yellow, purplish in the centre. They commence to open before Christmas, and continue until March. Although hardy in the open near London, it ought always to be given a place on a wall. Of several varieties, Lindley's *grandiflorus* is the best. *W. J. B.*

PROTEA CYNAROIDES.

There are two large specimens of this, the noblest of all the *Proteas*, in the Succulent-house at Kew, and it is rarely that one or the other of them is without flowers. Several fine blooms will be open in a few days, and as they remain fresh on the plant for two or three months, they will be a lasting attraction (see *Gardeners' Chronicle*, 1895, i., 773). It is evident from the behaviour of these two plants since they were planted in the gravelly-bed among the Agaves, that this *Protea*, at any rate, is easily managed when planted in well-drained soil in a sunny greenhouse. The tallest stems are 10 feet high, and they are handsome in their rich green spoon-shaped leaves, apart from the attractions of their enormous flower-heads, which, as the name indicates, are not unlike the head of the Globe Artichoke; they are, however, much handsomer, being cupped, and the bracts are of a bright rose-pink colour. *W. J. B.*

ORCHID NOTES AND GLEANINGS.

CATTLEYA HARDYANA × VAR. FANYAUIANA.

MR. FANYAU's variety of this fine species is remarkable for its fine coloration, especially of the lip, which is of a rich maroon with a large yellow blotch on each side near the base, and numerous streaks of golden colour. *Lindenia*, t. DXCIII.

ODONTOGLOSSUM BIOTONENSE.

Lindley var. *album*, *Lindenia*, t. DXCIV.

CYPRIPEDIUM INSIGNE VAR. JANUS, L. *Linden*.

The remarkable feature about this variety is the lower sepal, which is pure white, but destitute of spots. *Lindenia*, t. DXXV.

CATASETUM SPLENDENS × VAR. GRONANI, flower white, sepals and petals white tipped with carmine, and with spots of same colour at the base. *Lindenia*, t. DXXVI.

LELIO-CATTLEYA RIDOLFIANA × VAR. ARMAIN-VILLIERENSIS.

This fine hybrid will necessitate the preparation of longer labels than have hitherto sufficed. It is a hybrid between *Lælia purpurata* and *Cattleya Mossiae*, differing from either of the other forms having a similar parentage. *Lindenia*, t. DXXVII.

CATTLEYA AUREA.

A double plate of the *Lindenia*, t. DXXVIII-DXCIX, is

devoted to the illustration of varieties of this splendid species.

CYPRIPEDIUM BEECKMANNI × L. *LINDEN*.

A cross between *C. Boxalli* and as alleged *C. bellatulum*, see *Gardeners' Chronicle*, xxii., pp. 338, 446. The plant, we may mention incidentally, was sold for £160, = 4,000 frs. *Lindenia*, t. DC.

CYPRIPEDIUM INSIGNE CITRINUM.

Although none of the yellow forms of *Cypripedium insigne* which has yet appeared is equal to the famed *C. i. Sanderæ*, yet they are all pretty and interesting as showing the various stages by which that highest, example of colour suppression in the species has been attained. In *C. i. citrinum* we have a flower of good form, and of a clear light yellow colour, with the upper third of the dorsal sepal pure white. The yellow portion of the dorsal sepal shows indistinct brown spots, and the white portion some very pale purple ones, so that the suppression of colour as in *C. i. Sanderæ*, and in a less degree in *C. i. Sanderianum*, and others, is not so effectually accomplished in *C. i. citrinum*.

A specimen of it was shown at the Royal Horticultural Society, by Capt. Holford in his fine collection of *Cypripediums*, in January; and a twin-flowered inflorescence, which has been in bloom for a considerable time, is sent by W. M. Appleton, Esq., Tyn-y-Coed, Weston-super-Mare.

LÆLIA ANCEPS.

A plant of what was generally admitted to be the finest white *Lælia anceps* which has yet appeared made its appearance at the Auction Rooms of Messrs. Protheroe & Morris on Friday, February 4. It may be likened to *L. a. Schroderiana*, whose chief characteristic is the unusually large and flat front lobe to the labellum. The variety in question had very large pure white flowers, the sepals and petals of which were very broad, and the whole flower of fine form and substance. The labellum, however, was the most extraordinary feature, on account of its great size, and the extraordinary development of the front lobe of the lip, which appeared to exceed in length the basal portion. The side lobes of the lip had some purple lines, and the crest a yellow tinge. At fourteen and a half guineas it was acquired by H. T. Pitt, Esq., Rosslyn, Stamford Hill, a great fancier of unusually good Orchids.

AN ABNORMAL CATTLEYA TRIANÆI PLUMOSA.

The pretty variety of *Cattleya Trianæi* known in some gardens as "*plumosa*," and having a finely formed flower, richly coloured labellum, and purple feather on the petals similar to *C. T. Backhouseana* is always a pleasing object, but the flower of it sent by Walter C. Walker, Esq., Percy Lodge, Winchmore Hill (gr., Mr. Geo. Cragg), presents it in a new but not less beautiful form. The pale lavender sepals, and the broad and slightly darker petals with their showy purple feather are formed and arranged as usual; but there are three labellums, each perfect though slightly narrower than the normal labellum would be. Two of the lips are arranged side by side, the inner edge of each being under the column (of which there is but one); the third lip is below the other two, and effectively arranged with the others, each lip having the colours as in a perfect specimen. *J. O. B.*

SANDRINGHAM HOUSE.

THE disposition of the trees in the park and pleasure-grounds—whether by accident or design, or by both—is most effective and picturesque. Oaks of enormous dimensions and unknown age are dotted all over the noble demesne. The memorial trees, which have a special value to arboriculturists, from the fact that they are mostly named and dated, and that, consequently, their rate of growth can be gauged, are subjoined:—*Araucaria imbricata*, planted by the Countess Valerie Hohenthal, November 9, 1863; 2 feet girth. *Abies Pinsapo*, planted by H.R.H. the Hereditary Grand Duke of Mecklenburg-Strelitz, April 4, 1874; 4 feet girth. *Pseudo-tsuga Douglasii*, planted by Lady Adelaide Talbot, April 20, 1866; 6 feet girth. *Abies nobilis*, planted by Lady Gertrude Talbot, April 20, 1866; 3 feet girth. *A. grandis*,

planted by H.R.H. the Duchess of Cambridge, April 11, 1866; 6 feet girth. *A. Nordmanniana*, planted by the Right Honourable the Earl of Shrewsbury, April 20, 1866; 4 feet girth. *Cedrus atlantica*, planted by the Duchess of Sutherland, November 13,

to a height of 60 feet. *Abies Pinsapo*, planted by H.R.H. the Princess of Wales, April 4, 1874; 6 feet girth. *Cupressus Lawsoniana*, undated, 8 feet girth, 50 feet high. *Abies brachyphylla*, planted by H.I.H. the Czarewitch, June 29, 1894. Oak, planted

the Douglas Firs will become stately trees. Several old Oaks in the park range in girth from 17 to 30 feet; the latter measurement is quite correct, but an Oak with a diameter of 10 feet is certainly phenomenal. There is a Hornbeam with a girth of 10 feet, a Sycamore with a girth of 9 feet, and a Turkey Oak with a girth of 10 feet. The oriental Planes were in grand plumage, and are probably the best the Society has ever seen. A Medlar, in fruit, 33 feet high, was noted, as well as evergreen Oaks over 30 feet high, in splendid foliage, and well arranged. In the private grounds is a perfect specimen of *Picea pungens glauca*, 9 feet high. A broad-leaved English Elm, 42½ inches (quarter girth) 3 feet up, merited attention; and hanging over the lake, between Sandringham House and York House, we found a *Salix babylonica*, 40 feet high—a most elegant tree with a beautiful weeping habit. In walking from the kennels to the stables, there are two very conspicuous specimens of Coniferae—the one *Pinus Jeffreyi*, 50 feet high; the other *Abies nobilis glauca*, 95 feet high. Both are noble specimens of their kind. To the horticulturists, the bedding in front of Sandringham House was a source of real pleasure, and was much admired. The style was quite new, and most effective, the foliage plants and flowers being very artistically intermixed. The Japanese Honeysuckle in the vicinity of York House was also most beautiful. *Transactions of the English Arboricultural Society.*

BELGIUM.

PLANTS AT L'HORTICULTURE INTERNATIONALE.

THERE is now here a fine show of *Laelia præstans*, of which there are many interesting varieties; amongst them *alba*, which is as rare as beautiful. There is also a fine importation of *Cypripedium bellatulum* from Burma, splendid plants, and in full vigour. *Aërides crassifolium* is also a new and interesting importation.

Dendrobium nobile chinense blooms well, and is valuable as a cut flower. This Chinese species flowers from the pseudo-bulbs, and with rare abundance. I believe it may yet rival *Odontoglossum crispum*. Numerous and good varieties of *Dendrobium glumaceum* are in bloom, and are most delicate and sweetly scented.

Odontoglossum Wilckeanum, which last year was much admired for its great beauty, is now beginning to flower again, and maintains the reputation previously gained. This will afford specialists an opportunity for studying the great variety observable in the flowers of *Odontoglossums*. *Ch. de B.*

AMERICAN NOTES.

THE DWARF SWEET PEAS.

THE enthusiastic Sweet Pea connoisseurs, Messrs. W. Atlee Burpee & Co., of Philadelphia, are introducing this year their new Dwarf Sweet Pea, Pink Cupid. This is a sport from Cupid, the original dwarf white variety, and is said to be somewhat stronger in constitution and easier to grow. The same company promises two more dwarf varieties for 1899, Primrose Cupid, and Eliza Eckford Cupid. This energetic development of such a striking line of novelties is all very delightful, and no one would have the heart to criticise it in a firm which has done so much for Sweet Pea culture in America; but after all, the Dwarf Sweet Peas have not proved to be of any great interest to the ordinary grower of garden flowers, and they do not seem likely to affect favourably or adversely the immense popularity which the Sweet Peas in general are now enjoying.

SOME NEW FLOWERING PLANTS.

A new strain of Hollyhocks, under the general name of Alleghany, introduced last year by Mr. A. E. Wohlerst, gardener to the Pennsylvania Railroad, has met with general favour, and is advertised in nearly all the plant catalogues for 1898. The strain is



FIG. 34.—KEMPTERIA ETHELE: FLOWERS ROSY-PURPLE. (SEE P. 94.)

1865; 5 feet girth. *Abies Pinsapo*, planted by Prince John of Glucksburg, May 5, 1871; 4 feet girth. *Cedrus Libani*, planted by H.R.H. the Prince of Wales, February 10, 1872; 8 feet girth. *Sequoia gigantea*, planted by H.R.H. the Crown Prince of Denmark, April 20, 1878; 4 feet girth. Other Wellingtonias, undated, range from 10 to 15 feet in girth, and rise

by H.R.H. Prince Edward of York, October 5, 1896. The acorn of this Oak was planted by Mr. John Jeffreys on July 6, 1893, as a memento of the marriage of the Duke and Duchess of York, and it appeared above-ground in the middle of June, 1894.

Good specimens of *Sequoia gigantea*, of *Cedrus Deodara*, and Douglas Fir are to be seen. In a few years

somewhat like the Japanese Hollyhocks introduced several years ago, having the blossoms, especially of the inner parts, beautifully frilled and fimbriated. The varieties show a wide range of colour, but colours and forms have not yet been selected to an extent to make them very stable. A fair proportion of the seedlings, though, always prove desirable, and the strain is likely to meet general approval.

The Orchid-flowering Cannas are advertised in all the catalogues for 1898, and will probably be seen quite commonly in gardens hereafter. Italia, Austria, and Burbank, seem to be the only varieties generally offered, which is really unfortunate, for such varieties as America and Pandora would surely add materially to the limited appreciation which the Orchid-flowering Cannas have awakened in America.

The Dahlias are enjoying a revival of interest in this country, and dealers are finding a demand for considerable quantities of roots of the finest varieties. The *Cac'us-Dahlias* seem to be special favourites. F. A. Waugh.

THE SEASON OF 1897 AT ISLEWORTH, MIDDLESEX.

THE weather of the past year was not marked by any great extremes, although a retrospect shows it to have been a disappointing season in most respects. April and May were cold, droughty, and a very unfavourable seed time, so that the hot months of June and July, failing to give us any really heavy rains, found vegetation drought-stricken and unable to make much progress. Such conditions, of course, produced precocious flowering, and a general falling of all tree-fruits.

The autumn was cool, dry, and very favourable. The average maximum for the year was 57° (1° below average), the maximum temperature 94°, and the minimum temperature 22°. The rainfall 21.52 inches.

The night temperatures during the summer, until August came in, were very low, minima as low as 41° occurring in July. On the other hand, the day temperatures were above the average, and 70° was touched on seventy-nine days.

Frost was registered on fifty-three nights during the year, but there was no severe cold. Snow was visible on seventeen days.

FLOWER GARDEN.—The copious rains (6.83 inches) of February and March produced almost ideal conditions for the flowering season of our spring bulbs in the beds and borders, and I have never seen Hyacinths, Scillas, and Narcissus generally bloom to such perfection or in such profusion. My experience here being quite the reverse of many of your correspondents in this particular.

The later-flowering bulbous and tuberous rooted plants were failures, owing to the drought of April and May, and the dry conditions ruling throughout the summer. The Japanese Lilies and Dahlias were especially affected, and also the Begonias, although I think the cold nights were perhaps as much to blame for this latter failure.

Tulips made a brave show as usual, although frosts in the middle of May bleached the later early-section.

Among hedding plants Zinnias and Asters did well, and the perennial section remarkably so.

Although the midsummer heats were distressing to pot Chrysanthemums, the autumn (dispite the fogs) was favourable to them. A few choice varieties are made a specialty of here, particularly (1) W. Seward, (2) W. Holmes, (3) Elaine, (4) Ryecroft Glory, (5) W. Stevens, and (6) Cullingfordi. Many of the "exhibition" and "size-above-quality" section have had to be relegated to verandah work, on account of their coarse appearance.

I found Ryecroft Glory and W. Stevens stand very well out of doors, where others failed or were spoiled by the weather.

Lycoris squamigera has become thoroughly established outside, and this year produced 150 flower-scapes (3 to 7 flowers to the scape) which were all in bloom at one time in early August. *L. sanguinea* (var.) also produced three scapes outside, but I have doubts for its future well-being.

Brunsvigias, of sorts, only produced a dozen blooms out of doors, or about a third of their average amount of bloom. Several tubers of *Arisema fimbriatum* planted out in a shady place in June mostly produced spathes in August, and strong leaf growth; so probably this can be used in the same way as many of the *Amorphophalli*, although it has hitherto been considered as a stove species.

Hippeastrum anicum flowered well outside in August, so that both this species and *H. sub-barbatum* (Herbert) can be utilized in this way. The difficulty lies in the after-treatment, so as to prepare the bulbs for flowering again another year. This is, however, of a special nature, into which it is impossible to enter shortly.

Garden tuberous Begonias have remained in the soil at the foot of a wall undisturbed for two winters, and flowered again this season, but very late. So also has *Oxalis cernua*, but I should doubt either surviving a severe winter unless covered up. *Oncidium incurvum* again flowered well outside for a prolonged period and was much admired.

FRUIT.—Pears and Apples carried very variable crops, one tree having no fruit at all, and the next to it being overloaded; but generally the result was under average. The

ripening period being cool and dry, the fruit was generally well finished, and of good keeping quality. Cox's Orange was a failure, Blenheim's a heavy crop of fine fruit. Among the Pears, the old Burre Bosc (locally called Calabasse or Calabash) again proved itself to be a heavy and regular cropper, and of superb flavour, second only in my estimation to Marie Louise, which this season failed to produce any fruit whatever. The once much-extolled Pitmaston Duchesse has, after several years' trial, been extirpated as utterly worthless for any purpose except that of exhibition.

Damsons were an absolute failure, and Plums generally a very poor crop. Apricots were scarce; Peaches a moderate crop of fair-sized fruit; Mulberries scarce, also Walnuts, but Filberts and Cobnuts a bountiful crop. Morellos averages; Quinces good. Among small fruits, the Gooseberry crop was simply wonderful, the best I have ever seen. Strawberries fair, the variety "The Countess" being the best flavoured of the year. Raspberries very poor. Brambles (of sorts) prolific. Currants under average.

VEGETABLES.—There was no disease among the Potatoes (Sutton's Snowball the best quality); Peas and Lettuces suffered from drought.

Conservatory, &c.—The noticeable results of the year have been (1) the flowering of *Eucharis Lehmanni*, and *Hymenocallis Moritzianum*, and the raising of seedlings in both cases; (2) the securing of the mature fruit of *Elisena longipetala*. This has an important bearing botanically, as it throws doubt upon whether the genus should be any longer separated from *Hymenocallis*. A. Worsley, Mandeville House, Isleworth.

TITMICE.

ALL the titmice are more or less active hunters of insects, for which they are constantly on the watch, and no inhabitants of the insect world come amiss to them as food. They are especially useful in the destruction of many crop-pests, which they devour in all stages. During the winter they clear off enormous quantities of eggs which have been deposited by insects of various kinds in dormant buds, or near the buds, and in the clefts of the bark or rind of trees. At this season the titmice may be seen frequently running up and down the trunks, stems, and branches, or hanging head downwards from the smaller branches and twigs, prying anxiously into each crevice and fold of the rind in search of eggs, hibernating larvae, or perfect insects. Their sight is so keen that they can detect such small eggs as those of the Winter-moth, and they have been seen actively devouring the minute red eggs of the *Bryobia* upon the stems and branches of Gooseberry-bushes and Damson-trees.

It is sometimes alleged that the tits, like the sparrows, pick out the buds of trees and shrubs, either wantonly or for food; but this accusation is wrong, and based upon insufficient investigation of the circumstances, as titmice attack only buds that are infested—for example, Apple, Pear, Plum, and Damson buds infested with the larvae of the Winter-moth, or the larvae of the Apple-blossom weevil.

The crested tit, *Parus cristatus*, is a pretty little bird, but it is scarce, and decreasing in numbers. It feeds upon insects and weed seeds, and should for this reason be carefully preserved. Yarrell, Seebohm, and Harting remark upon the rarity of this bird.

The coal-tit, *Parus ater*, though somewhat common, is not so well known as the great tit and the blue tit, since it is not domesticated, and lives in woods, copses, and shrubberies distant from houses. It is frequently found in Birch and Pine-woods. "Birch-woods," says Seebohm, "are the favourite haunts of this bird during the breeding season, where the abundance of holes suitable for nesting purposes is probably the chief attraction."

The coal-tit is as great a destroyer of insects as the other members of the same family, and should be rigorously preserved. Yarrell, in writing of this bird, says that like the blue tit it is constantly in motion, roving from tree to tree in active search for those small insects and the seeds of various evergreens, upon which it principally exists.

The coal-tit is rather more than 4 inches long. Its general colour is bluish-grey, with a dull white breast, and it may be distinguished from the marsh-tit, which it somewhat resembles in colour and size, by a large white patch on the back of the neck, and by white spots on the wings. It usually makes its nest in holes in trees and stumps of trees; but Lord Lilford says that he has always found the nests in

burrows and holes in the earth made by rabbits and other animals.

The marsh-tit (*Parus palustris*) is not so common as the species just described, and is of rather smaller size. It is occasionally seen in gardens and orchards, principally in the winter; but its chief habitations are low-lying meadows and damp situations, where it nests in holes in old Willow-trees and other trees, pollards, and stumps, very close to the ground. It is insectivorous. Yarrell states that it is also partial to the seeds of the Thistle.

According to Seebohm, it may be seen in almost every conceivable position, searching for insects on the buds at the end of a branch. It is slightly smaller than the coal-tit; its head is bluish-black, the sides of the neck are white, the under part of the body is light brown, while the upper part is olive-brown, of varying shades. It builds its nest much in the same manner as the coal-tit, in holes in stumps of trees and in holes in the earth. *Board of Agriculture*, 4, Whitehall Place, S.W.

To be continued.)

A NEW COTTON-PLANT.

"THE variety of cotton in question has only been known to civilisation for a couple of years. It was first discovered in the region of the Congo by an explorer named Adolph Kyle, an English Jew, who, with a few other young men, started on a prospecting tour in Central Africa in December, 1892. One day, towards the end of the following year, they pitched their camp on the outskirts of a village 20 miles south of the Equator, and about 1000 miles from the coast. He observed growing near the camp a thicket of mammoth Cotton-plants, 20 feet and over in height, and covered with bolls. The plant was limbless, and bore its seed-pods at the base of its broad Fig-like leaves, and only a few inches from the stem. The native villagers were utterly ignorant of the utility of the product of the shrubs.

"This year (1897) he (Mr. Jackson, a farmer to whom some seed was given) has planted 6 acres, and it is said that he has 'the most magnificent field of Cotton ever seen in Georgia.' Although the season has been unfavourable owing to a prolonged drought, the yield of this crop is estimated at four and a half American bales (containing 600 lb. each) per acre. Experts who have seen the crop are of opinion that the crop is superior even to the far-famed Sea Island product.

"The plant is quite different from that of any other variety of Cotton grown in America. The stalk is stout and straight, and supported by a rough fibrous bark. The blooms open at night, and are cylindrical instead of flaring, so that they do not admit the rain, which causes the dropping of the fruitage in wet seasons; the leaves drop out of the way as the boll ripens, and the locks hang loosely in the wide open bolls, so that the crop is easily harvested. The new Cotton has attracted a great deal of attention in the United States, and Farmer Jackson has a rush of Cotton-growers, buyers, and mill agents from all over the country to see his wonderful crops, the produce of which has been purchased by one of the largest southern mills. It is estimated that the general use of this Cotton in the Southern States will reduce the area necessary to be sown for the present average yield by fully 60 per cent." *Indian Textile Journal*, Nov. 15, 1897. We should like to see a specimen of this novelty. Ed.]

FLORISTS' FLOWERS.

NOVELTIES IN CHRYSANTHEMUMS.

THE novelties of the present season are again numerous, and I have seen amongst them some varieties that are really promising. There are several crimson-flowered varieties that will be especially welcome, as the colour is not by any means common in the large-flowering type. In fact, two of these are likely to rank among the very best. Joseph Chamberlain has long, drooping florets of exceeding rich colour, and is said to be a seedling

from Edwin Molyneux—a fact greatly in its favour. S. W. Gilbert, judged from a bloom I have seen, is much like a crimson Etoile de Lyon. Then there is the sport from Madame Carnot, known as Mrs. W. Mease, which has a pale creamy-yellow flower, and which has been exceedingly well shown by the raiser.

rosy-peach. Frances B. Hayes has a flower of very fine build, the florets loosely drooping, incurving, and in colour a pretty shade of pink. Matthew Hodgson, though not so novel, should be grown by all who like a bright and effective colour. I have not seen it often exhibited, but the plant is a vigorous grower,

FORESTRY.

DEGREES OF THINNING.

WITH regard to Oak, although freely used on most English estates for gates, fencing, &c., on account of its being conveniently at hand, it cannot be looked upon as a tree which is planted chiefly for estate purposes; in fact, except as a unit to the ordinary mixed plantation, the planting of this tree is almost entirely neglected at the present time, chiefly on account of its relatively slow growth. But where a sound and permanent system of forestry is to be inaugurated or maintained, we contend that Oak should still form the backbone of woods on heavy soils, for good English Oak never lacks, nor probably will lack, a purchaser, which is more than can be said for the timber of many species. But Oak timber of the present and future is, and will be, put to very different uses to what was the case a century ago. The "wooden walls of Old England" now exist only in verse and tradition; and in view of the development of modern naval architecture, it seems hardly possible to believe that the British Government should once have thought it worth while to set aside a few thousand acres of land for the purpose of growing Oak-timber for the Navy. But while all ideas of this kind are now obsolete, it can hardly be said that the method of growing Oak for which they are responsible, are equally of the past. Less than a century ago, the most valuable part of an Oak-tree was its bark, and its crooked limbs, the latter forming knees for use in shipbuilding. The greater the number and size of the branches, the better the chance of getting these highly-prized crooks, and the greater the quantity of bark. Naturally, therefore, the old system of thinning Oak brought the density of the plantation very much on a par with that of a Kentish Cherry-orchard, and a plantation specimen differed little from one in a park or hedgerow. Probably to prevent what was considered as a waste of ground, the plantation was filled up with Hazel-underwood, forming what is generally known as coppice, with standards, the latter having every inducement to form large, spreading heads, and short, thick boles. It need hardly be said that the demand for trees of this type no longer exists, although the method of producing them does. With bark at a price which just pays for taking it off and no more, and the once-valued crooks worth their weight as firewood, the man, or rather the series of men, who aim at producing marketable timber, must adopt other methods. Straight, clean timber, of large size, and free from cup-and-star shape, now fetch the top price, railway companies using such stuff for wagon-building, &c. Oak timber of this class wants a good soil, a warm climate, and a healthy and vigorous crown of foliage to produce it, and given these and fair treatment, we believe Oak plantations would prove as profitable in the long run as the majority. With the long-lived tree of this description, the survival of the fittest principle comes greatly into play, and the production of first-class timber depends less upon the degree of thinning than upon the constant weeding out of individuals which show little promise of becoming sustained growers. Nothing defeats this end more than the rule-of-thumb species of thinning, which keeps the so-many-feet-apart idea steady in view.

How often do we find a group of three or four Oaks or other trees in woodlands left pretty much to themselves, which all stand on a piece of ground 6 yards square, and yet contain more good timber than a dozen carefully thinned out trees elsewhere. The explanation of this probably lies in the fact that the soil at that particular spot is deeper and richer than the average, and is able to sustain a much greater growth of vegetation, and the moral is "take full advantage of it." The policy of the thinner of an Oak plantation should be that of carefully picking out these exceptionally favourable sites, and giving the trees thereon every opportunity of reaching maturity. While keeping them sufficiently thick to encourage altitude in the early stages, they should



FIG. 35.—STERNBERGIA MACRANTHA: FLOWERS YELLOW. NAT. SIZE. (SEE P. 94.)

A bronzy-coloured sport from Edith Tabor, named Mrs. Banks, will be likely to prove a very good variety; Mrs. J. Gleeson, a pretty rosy-apricot shade on a yellow ground, florets loosely incurving; W. Towers, a very promising yellow Japanese, and Mary Molyneux, are all likely to be good; the colour of the last-named is rosy-lilac, shading to a beautiful

and of dwarf habit. Plants of G. J. Warren distributed last spring were probably too weak, or it will not prove so satisfactory as its parent. I have not heard of a really good first-rate flower being shown this season, and, in my humble opinion, a guinea is too much to pay for a plant that is not vigorous enough to produce an exhibition bloom. E. Knowles.

never be left unthinned long enough to get drawn up and lose a properly balanced crown of foliage, for such conditions favour shabby timber as much as anything next to quality of soil. Other parts of the wood which exhibit a slow or unhealthy growth had better frequently be thinned and cleared comparatively early, and the ground replanted with something more suitable. If mixed freely with Ash at the time of planting, the thinner has the option of taking out or leaving whichever species he finds doing best, while young Ash timber and poles are more valuable than Oak as thinnings.

It is a great mistake, however, to attempt to raise really good Oak woods on the mixed plantation system, and planting single Oaks 30 or more feet apart, in the expectation that each one is going to make a satisfactory tree. In such cases the principle of natural selection never comes into play, and more often than not the plantation never becomes an Oak wood at all, but a mixture of inferior Larch and other Conifers, which produce almost worthless timber on typical Oak soils. Now-a-days, the latter are not planted to any great extent as a means of utilising the soil economically, except perhaps on high and exposed situations, and in such cases the desirability of introducing something which will grow quicker than Oak under the given conditions, is conceivable, and may necessitate a different system in which the Oak is less predominant. *A. C. Forbes.*

(To be continued.)

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Plum Trees on Walls.—Let the pruning and nailing of these trees be finished without delay. If the fruit-spurs are, as is often the case, of great length, the flowers are more exposed to injury than when the spurs are short, and as the Plum breaks from the old wood very freely in all but very aged trees, these should be shortened or removed. Every young fruit-pur should be shortened to back buds annually, and well-placed young shoots laid in by the side of the older main branches, removing the latter as those become fit to fill their places. It is a mistake to be avoided to train in young shoots thickly, as the fruits require light and air when ripening, in order to obtain their proper colour and fine flavour, and the young shoots and branches should have not less space than 4 inches between them, and in the case of large-foliated varieties like Cox's Emperor and Magnum Bonum, 5 inches should be the minimum. Plums like Imperatrice having small foliage may have less than 4 inches; still it is a good rule to adhere to, as from their lateness in ripening the fruits require every ray of sunshine.

Plum bushes.—When Plum bushes are much restricted in size, they seldom fruit satisfactorily, owing to the strong annual growth that is made, the only remedy for which is periodical root-pruning. Bushes are, however, more suitable for small gardens than are large standard trees; and it is an easy matter to protect the bloom from frost and the fruit from the birds. The roots of the Plum are very prone to throw up brood—in garden parlance, "suckers"—more especially when the ground is under the spade, and to extirpate these the offending roots should be bared with a spade at this season, and the shoots severed without injuring the roots. These suckers if furnished with roots will, if planted in nursery lines in the reserve garden, form stocks for budding and grafting in a year or two. The Cluster or Crittenden Damson is a variety usually standing on its own roots, and its suckers are, therefore, true. Although not a Damson of the best quality, the Cluster is useful in a scarce year, as it is seldom fruitless, even when all other varieties fail. Last year the fruit was worth £20 per ton. Another small Plum, Mirabelle, is most valuable for all sorts of cooking and preserving purposes; but it is almost unknown in this country, although much grown in Germany, the growth is very similar to Cluster Damson, the fruit pale yellow, sweet, smaller than the common Damson, almost round, and of nice flavour when cooked or preserved. Some authorities confuse this variety with White Myrobalan, from which it is quite distinct, and far more certain in cropping.

Black Aphid on Cherries.—This, one of the worst pests the fruit-grower has to contend with, usually appears plentifully when the fruits are swelling, and therefore when the use of insecticide is pro-

hibited. Badly-nourished trees are more liable to attack than those possessing vigour, and much arises from root-feeding. To do this the more readily, bare the upper roots, and apply 4 inches of decayed cow-stall-manure, and mix some good turfy loam, equal to one-half of the staple, mixed, and a few barrow-loads of plaster or finely-broken chalk per tree, returning the whole after well mixing it together over the roots, and make it quite firm by treading it. Before the buds expand, syringe the trees with a solution of soft-soap, 24 oz.; common brown carbolic acid, one wineglassful; rain-water, 4 gals., well stirred together, and choosing a calm day; apply it over every part, and do not wash it off the trees. While it is being used, the mixture must be kept stirred or the acid will come to the top. It is important that this should be done while the buds are still firm and before growth advances, a little green showing does not signify, but if the buds are much swollen the acid will burn them. On referring to my note-book I find March 19 was the day we did our trees last year, but this season the date will be much earlier. If Lettuce or Parsley are growing at the foot of the Cherry-walls, the solution if it touch them will destroy them.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Zonal Pelargoniums.—Plants which, since flowering, have been kept dry, may be pruned close back, and afterwards placed in a gentle heat, to enable them to break into growth. For increase of stock, cuttings may be inserted in sandy soil, and placed in a warm-house near the glass; and young plants may have a shift into 5-inch pots, making the soil firm round the ball, in order to insure short, sturdy growth.

Cliveias.—Last year's seedlings, which have hitherto been in a cool-house, may be shifted into larger pots, using a potting-soil of rich, friable loam, leaf-mould, rotten manure, and sand; pot firmly, afford water, and place the plants in a house having 55° of warmth. They will soon start into growth, and make strong plants during the summer. Old plants which have been partially rested may be started in a gentle heat to flower them, and when in active growth be afforded abundance of water, and occasionally manure-water.

Dipladenias.—The plants having been kept somewhat dry at the roots may now have the weakly growths removed, and be sponged over to clean them of insects; and those which need more root-space may be repotted in a compost consisting of peat, loam, sand, and small pieces of charcoal, and in well drained pots. Water will not be required before growth pushes freely; and plants that do not require shifting may be top-dressed. Let the growths be trained close to the glass in a light part of the stove, as the plants revel in light, heat, and moisture when growing.

Lapagerias.—Let all weak shoots be removed with the knife, and the main growths untwined and regulated, for nothing is gained by tying in many growths in a bundle; on the contrary they become weak, flowering not at all, or unsatisfactorily. Afford every part of the plants a copious syringing with an insecticide, both when the growths are unloosened, and after tying them in. A close watch must be kept for slugs of all kinds, which are partial to the tender young shoots, protection being afforded by forming a ring of tobacco-powder around the base of the plant, and sprinkling some over the young shoots as growth proceeds, or by placing a piece of wadding the woolly side outwards round the stems close to the ground. If planted out, remove all the soil down to the roots, replacing it with a compost consisting of good lumpy pieces of loam and peat, plenty of sand, and some small pieces of sandstone. Be sure that the drainage is clear, and in good order. Any of the plants that are growing in pots or tubs that require more rooting space may be repotted, and placed on a cool base in a cool-house, watering them carefully till root-growth is active.

Achimenes.—The tubers, or some of them, may be shaken out of the worn-out soil in which they grew last year, and be placed thinly and regularly in baskets filled with light soil, such as peat one half, leaf-soil one half, and plenty of sand, or they may be placed rather more thickly together in shallow pans, just covering them and no more with soil and starting them in gentle heat, affording no water at the first, or until the tubers begin to grow, and shading them from strong sunshine. When 2 to 3 inches high, lift each tuber or several together, and plant these in pots or baskets at about 2 inches apart.

Primulas.—Plants now in small pots and intended for flowering next autumn, must not become root-

bound before they get a slight shift, or be allowed to produce any flowers. Seeds sown at this date furnish plants that will flower late in the autumn. The seed-pans should be filled the day before sowing with a mixture of equal parts of loam and leaf-mould with plenty of sand added, and be afforded water to moisten the soil. When the seed is sown, just sprinkle a pinch of silver sand over it, and cover with a sheet of glass; shade with a bit of brown paper and place in a mild hot-bed, no water being applied for some time. Plants in bloom will require manure-water occasionally, and a temperature of 50° to 55°, with plenty of air whenever possible.

Cyclamens.—If seed has not been sown for another season's supply of plants, no time should be lost in sowing some in pans filled with moderately light soil, the seeds being barely covered with the mould. Place in a brisk heat, and when the plants appear, place close to the glass, and admit air gradually.

Fuchsias.—Any of the plants after a period of rest may be brought into gentle heat. If pyramidal-shaped plants are desired, cut back the side-growths close to the previous year's growth, and shorten the main leader. Plants struck in the autumn of 1897, as soon as growth becomes active, should be sifted into larger pots; and if more plants are required, some of the old plants should be left unpruned, and placed in a brisk heat in order to afford cuttings, and after taking off the required number of cuttings, these plants may be cut hard back.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

Winter Broccoli.—Examine the plants frequently, cutting every head which is large enough for consumption, and if a larger number of heads are turning in than can be kept in good condition if removed from the plants, lift the plants on a dry day, and heel them in, in a cold pit or shed. I have this season had very superior Broccoli from unprotected plants—an unusual occurrence in this part of the country.

Autumn-sown Lettuce and Onions.—The plants in handlights should be freed from decayed leaves, and the surface of the soil loosened. The Lettuces planted on south borders should have vacancies in the rows made good from the seed-beds, and dead and decayed leaves removed, some dry soot being spread between the plants to deter slugs, and mix the soot with the soil by using the Dutch-hoe. The Onion-beds should be hand-weeded, and the plants made firm in the soil by trampling carefully on each side of the rows, as they are sure to have been loosened by frost; after doing this, lightly hoe the ground.

Dwarf Early Peas.—Make a sowing of some early Dwarf Peas on a warm border or other sheltered part of the garden. Good varieties for this sowing are May Queen, 2 feet in height; Chelsea Gem, height 15 inches; Early Sunrise, 2½ feet in height; and William Hurst, 1 foot in height, a space of 2 feet between the rows being afforded. Those who prefer taller growing varieties should sow Ringleader, height 4 feet; Improved William 1, height 3 feet; Kentish Invicta, height 3 feet; and Sangster's No. 1 (syn. Daniel O'Rourke), height 4 feet.

Broad Beans.—A good sowing of Broad Windsor, Green Windsor, and the Green Longpod Beans should now be made in the open, in soil which has been heavily manured, in rows 2½ inches deep, and 3 feet apart. The Windsor varieties do not commence to form pods before the eighth leaf from the bottom of the stem. Those who like white-seeded Beans may sow Sutton's Mammoth Longpod, which is both early and large. The earliest podding Beans are Dwarf Fan or Cluster, and Beck's Dwarf Green Gem, for although dwarf, they are great bearers, and they force well in frames.

Globe Artichokes.—If it be considered necessary, owing to the age of a plantation, to make a new one, seeds of the Green and Purple Globe varieties may be sown in a seed-box or pan, placing the same in a structure possessing a temperature of 50°, and when the seedlings are large enough to be handled readily, pricking them off into a frame placed on a shallow hot-bed, and growing them therein till the end of April, when, after due hardening-off for several weeks, they should be planted out in autumn-trenched and heavily manured soil in part of the garden free from trees, 4½ feet apart each way, and fully exposed to the sun. Heads can be cut in the autumn following from seedling plants. Old Artichokes produce under ground around the root-stock or neck, a number of shoots, "suckers," and these are usually more numerous on each plant to allow of full develop-

ment. The plants in March, when the protective covering is removed, should have these suckers exposed, and all but about three of the strongest removed, this being done without unnecessarily wounding the old stools. The best of these suckers should have the wounded parts of the heel trimmed off, and the leaves shortened a little. These may then be planted in the manner recommended for seedlings, or they may be planted in nursery lines, and planted permanently in June or July, thus rendering the results more certain. By planting suckers from proved good varieties, and at various periods from March to July, Artichokes of good quality can be sent into the kitchen for six months in succession without a break.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Early Peaches.—After the fruit is set, and before the young shoots become crowded, some amount of disbudding should be done by removing the back and front buds, and on parts of a tree where many of these buds appear remove a shoot here and there, taking care, however, not to remove the best placed lowermost shoots, which will be required in building up the tree, and in their turn to bear fruit next year. The disbudding should be done at intervals of five or six days, so as not to distress the trees, as the removal of many buds at one time would do. In disbudding never omit to leave a shoot in front of a fruit or fruits in order to induce a flow of sap, the resulting shoot being either stopped by tipping the point later or allowed to reach its full length as the case may require. Old weak wood on which the fruit is not set may be shortened back to a young shoot, and in some cases to the young shoot nearest its base. As the shoots grow in length, draw them carefully to the front side of the wires or wooden-trellis, and as soon as they are long enough, fasten them with bast, passing it round the old wood and the young shoots so that the shoot starts in a straight direction from the old wood. If after the fruit is set aphid infest the shoots and leaves, vaporise the house with XL All-compound, which, at this season, is the safest and most effective thing to use if the instructions are adhered to. The thinning of the fruits should be done at various stages of development, first when the largest are of the size of a Hazel-nut, and taking off all fruits situated between the branches, and the smallest where they are too close together to allow of full size being attained. A little thinning of the fruits should be performed each week till stoning takes place, leaving a few to be taken away after that period is finished. Do not remove the fruits indiscriminately, but leave those which are seen to be increasing in size faster than others, and leave much of it on the sunny-side of the tree. The temperature of the early Peach-house should range from 55° at night to 60° to 65° by day with artificial heat, and from that to 75° with sun-heat, and allow it to rise 10° higher on being cleared early in the afternoon. At dusk the upper ventilators may be opened a small space, and remain open during the night if the weather be not unfavourable; and maintain a somewhat arid atmosphere, so as to keep the wood and foliage firm and healthy. A syringing of the trees daily, more or less, according to the state of the weather, is good for them, but for the present once on fine days will suffice, and later, twice on fine days. When syringing a tree, direct the water on to both sides of the leaves, and do not always syringe the trees from one side only. Should mildew show itself on fruit or foliage, mix half-a-pint of flowers-of-sulphur into a thick paste with a small quantity of water, then blend it with 2 gallons of water, apply with a syringe, wetting the fruit and the foliage, and for a few days discontinue syringing with clean water. The borders will probably require attention in the matter of water, but first have them examined, affording copious waterings if the soil is found to be deficient in moisture, and as the season advances frequent applications will be required. The water afforded should always be tepid. Farm-yard-drainings may be added to the water alternately, and do not allow the soil to become very dry at any season.

Strawberries.—In order to assist fertilisation, the flowers should have a feather or hare's tail passed over them about noon, that is when the pollen is fairly dry and easily distributed. The reducing of the number of flowers, or of fruit, should be performed so that the strength of the plants be not wasted. For many years I have practised the thinning of the flowers when rather more than were sufficient for a crop were expanded with satisfactory results. The number of fruits that a plant will bring

to perfection depends upon the variety, whether it is large-fruited or otherwise. Large-fruited varieties, growing in 5-inch pots will carry six fruits, and if in 6-inch pots ten. When thinning is not practised, the production of first-class fruit is not so great as when thinning is practised. The plants should be strong once to carry the numbers given above, and if weak the crop should be one or two fewer fruits per plant. Plants with flowers set should have a liberal supply of water at the root as often as moisture is required, which will vary in accordance with the weather, water being always afforded before the soil has got dry. If manure-water be afforded, it should be much diluted, and used at every third watering. If an artificial kind be used, it should be readily soluble when sprinkled on the surface of the soil near to the edge of the pots. No reliance should be put on any one kind, but change made from time to time. Red spider will be sure to give some trouble, and the best check to the ravages of this mite is to thoroughly syringe the plants on fine days in time to let the plants get dry before nightfall. If the plants stand on shelves near the glass, it is not difficult to wet the under-sides of the leaves, where red spider chiefly harbours. Fumigate the plants, if aphid be present, in order to have them clean when the fruit colours. Never fumigate the house when fruit is colouring, as it imparts a disagreeable flavour to it. Let the ventilation be more or less according to the state of the weather, and close the house soon in the afternoon, but afford a slight amount again at dusk if there be no frost or strong wind. Let the temperatures range from 60° at night, 65° on dull, and 75° on sunny days. Do not practice syringing the plants when the fruit begins to colour, or apply manure of any kind; and afford less water and fuller ventilation.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Violas.—The autumn-struck cuttings, or these plants which have been raised from seed sown in the months of August and September, will now be ready for planting in the beds or borders, thus having time to get well established before dry weather occurs. Violas are now become almost indispensable plants in affording material for midsummer bedding, especially as ground work or carpeting under taller plants, and the colours of many of the varieties lend themselves admirably to the prevailing methods of planting, besides affording a long season of flowering.

Viola.—The removal of decayed leaves from these plants will require constant attention. The plants are blooming a great deal earlier than usual; and the fogs and humid atmosphere have caused considerable loss by the damping off of the leaves, especially with the more compact growing double-flowered varieties. Where hand-lights or frames are placed over these, on outside borders, great care should be exercised previous to the placing of them to see that all decayed matter be removed, and that a light surfacing of leaf-mould and sand be placed around them, which will aid in preventing damping off, and afford nutriment to the lateral roots of the plants; afford air liberally in mild weather.

Annuals.—It is quite time that a careful perusal was made of the seedsmen's catalogues, with a view to acquiring those varieties of flower seeds which will make the garden as bright as possible during the summer and autumn months. For outdoor sowing, the following are amongst the best:—Candytuft, in three distinct colours, white, crimson, and cerise; the average height of each is 1 foot, and the spiral varieties are most effective and useful as cut flowers. *Linum grandiflorum*, in three colours, white, blue, and scarlet, the last colour being the most effective; for continuity in flowering, and when an elaborate display of colour is required at a minimum cost, the *Linum* has no equal. For small beds, or for edgings of larger ones, the dwarf varieties of *Nasturtium* are exceedingly pretty. These can be obtained in various colours; they average in height from 6 inches to 1 foot, and bloom profusely if planted in poor soil. Of *Nemophila*, insignis, the bright blue flowered one is the best, and varies in height from 6 to 9 inches. It makes a bright display of a colour peculiarly its own, but to maintain continued bloom two or three sowings are needed. *Saponaria calabrica* is another capital annual, the flowers in their shape suggest a cross, and are borne in great profusion, and continue for a considerable time. It rarely grows more than 6 inches in height, unless in very strong soils, and is therefore exceedingly useful as an edging plant. The varieties enumerated above, with the addition of the several varieties of *Marigolds*,

will, if properly treated and the seedlings well thinned out, afford at a little cost great satisfaction to those who grow them.

Dahlia Tubers and Cuttings.—When a large number of any special variety is required, and the stock of tubers is limited, the latter should be placed forthwith in an early vinery or other warm-house, with a not lower degree of warmth than 55°. With this temperature the cuttings are short-jointed, whereas in a higher degree of heat the cuttings come weak and long. The cuttings should be taken from the root-stock, stripped with, if possible, a bit of it, as this ensures quicker rooting. Dahlia cuttings root readily in sand or cocoa-nut fibre, if either be kept moist in a temperature of from 60° to 70°. Let them be potted-off as soon as rooted in any kind of light soil, with a fair amount of sharp-sand and leaf-mould mixed with it; and gradually harden off as the season advances. A sharp look-out must be kept for wood-lice, which are very destructive to the cuttings and young plants.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Barford, Dorking.

Epiphronites Veitchii x.—Plants of this lovely hybrid are now showing their flower-spikes from the apex of the newly-made growths, and at this time if the compost be made too wet, the small leaves become spotted. This free-growing species should be kept in a cool, shady part of the intermediate-house. Do not remove the old stems when the flowers fade, because these frequently produce young plants, which should be constantly watched, so that as soon as they begin to root they may be removed with a portion of the stem attached, and put into small pots in sphagnum-moss only; in two or three months afterwards it will be necessary to repot them. The older plants should be repotted as soon as growth recommences into a rooting material of sphagnum-moss and a few pieces of fibry peat and broken crocks, taking care to well drain the pots. I have tried to grow this plant suspended near to the roof-glass, but it failed to thrive, though upon the stage, in company with *Miltonia vexillaria*, it grows luxuriantly.

Epidendrum Wallisii requires a similar position, and should now be watered freely. *E. Eedresio-Wallisii* x and *E. elegantulum* x, producing their spikes, need careful watering; both hybrids need the same treatment as the *Epiphronites*, and should be shaded from strong sunshine.

Miltonias.—Examine Brazilian *Miltonias*, and afford more rooting-space to any needing same. The dwarf-growing *M. spectabilis*, *M. Moreliana*, *M. Lubbersiana*, and *M. bicolor*, being scandent growers, require considerable space wherein to extend themselves, and shallow pans are suitable. Such of these plants that have become bare in the centre may be broken up, and all decayed bulbs removed from them before the growing pieces are made up afresh. The pans used should be quite half filled with drainage; and as compost, use good fibrous peat (devoid of fine matter) and a liberal quantity of broken crocks. In repotting the specimens, some of the pieces with but few roots must be pegged firmly down to the compost. *M. Clowesii*, *M. Regnelli*, *M. Russelliana*, *M. candida*, and its variety *grandiflora*, are strong-growing species, best grown in pots, using similar compost; and when potting, keep the plants well elevated above the rim of the pot, with the base of the bulbs just on the surface of the compost. Insert a few thick pieces of crock here and there among the peat, so that when the plants are in full growth, water may be given freely without causing sourness. Plants of *M. cuneata* must not be disturbed at present, as their flower-spikes are in course of development. All of these *Miltonias* may be grown in the coolest part of the intermediate-house, choosing a rather shady place for them. The rare *M. Schroderiana*, a distinct and handsome species, is now in full growth, and should be kept moist at the roots.

Masdevallia tovarensis having flowered, it is advisable to remove the spikes at once, because if they be allowed to produce secondary flowers, they tend to unduly weaken the plant. The plants are now making fresh leaves, and if any plant requires to be repotted, the work may now be done. Either pots or pans may be used, and it is very important that they be well drained; they should be filled up to within an inch of the rim with clean crocks, over which place a thin layer of moss, and keep the plant well up on a compost of fibrous peat and sphagnum-moss. Do not pack the material around the plant too closely, but compress it just sufficiently to make the plant firm. Water sparingly until the young leaves are well advanced. The coolest part of the intermediate-house will suit the plant for the present.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY,	FEB. 14	National Chrysanthemum Society (Smoking concert).
THURSDAY,	FEB. 17	Linnean Society's Meeting.
FRIDAY,	FEB. 18	Annual Meeting of Royal Gardeners' Orphan Fund, at Anderson's Hotel, Fleet Street, E.C.

SALES.

MONDAY	FEB. 14	Border Plants, Shrubs, Roses, Fruit Trees, &c., at Stevens' Rooms.
T. ES DAY	FEB. 15	Continental Plants, Roses, Greenhouse Plants, Begonias, &c., at Protheroe & Morris' Rooms.
WEDNESDAY,	FEB. 16	Japanese Lilies, Palm Seeds, Roses, Ornamental Plants, &c., at Protheroe & Morris' Rooms. Roses, Fruit Trees, Shrubs, &c., at Stevens' Rooms.
THURSDAY,	FEB. 17	Azaleas, Carnations, Hardy Border Plants and Bulbs, &c., at Protheroe & Morris' Rooms. 22 Cases of Aracarias, 200 Cases of Japanese Lilies, Plants, Roses, &c., at Stevens' Rooms.
FRIDAY,	FEB. 18	Important sale of Odontoglossum crispum and other Orchids, by order of Mr. Thos. Rochford, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick:—39°1°.

ACTUAL TEMPERATURES:—

LONDON.—February 9 (6 P.M.): Max., 48°; Min., 36°.
PROVINCES.—February 9 (6 P.M.): Max., 50°, south-west Ireland; Min., 42°, east of England.
Weather—slight frost; showers; dull.

COMPLACENCY reigned at the general meeting of the Royal Horticultural Society, on Tuesday last, on all points but one, which will be referred to in another place. The President, council and officers are well entitled to indulge in this feeling, for they have done their best and have achieved success. Who that remembers the South Kensington times could have supposed such a measure of success possible? Whilst thanking all those who have contributed to this result, we may be allowed to congratulate the President on the widely altered circumstances and on his devotion to the Society through ill report and good report. He should have been the chief among the Victoria Medallists, and it is a pity that some such proposal was not put to the meeting.

We have already published the report and extracts from the balance sheet. Sir TREVOR LAWRENCE's address to the Society naturally followed the lines of the report very closely, so that there is little room for comment. We may, in passing, allude to some of the points of interest. The expenditure on Chiswick amounting to £1800, or nearly one-third of the Society's income, shows no material diminution; but then, it must be remembered, that the establishment had during the evil days we mentioned been allowed to get into the uttermost state of disrepair. All that is put straight; old houses long condemned have at length disappeared, and new ones have been erected in their stead. The great vinery is in good repair, and the establishment generally is in excellent condition. The thought of deriving profit from Chiswick is out of the question; and it is a matter for regret that the

Society is forced under existing circumstances to devote any portion of its staff or their energies to the sale of produce. Commercial market-gardening can be better done by others, while by practising it the Society wastes energy which might more advantageously be devoted to other purposes. Chiswick should be within its limitations a model garden, an experimental garden, and an educational establishment. We hear of prizes and scholarships being awarded, but for what purpose is scarcely apparent. No course of instruction is given; and as for initiation into the principles of the science and art, there is none. Now that a Professor of Botany is appointed, something might be done to secure to the Chiswick lads a fuller modicum of instruction than they now get. We suspect that the feeling expressed by one of the speakers at the meeting to the effect that Chiswick is a "white elephant" is shared by many besides himself. It must be admitted that sentimental attachment to the old gardens induces the whole of the older Fellows to hope for the preservation and improvement of the old garden, but the vast mass of the new Fellows who have joined the Society within the last few years have no such feeling. They know nothing of its glories past, and are indifferent to its present state. Still, among them are surely some who would, if it were explained to them, appreciate the necessity for an experimental garden, and a school of horticulture.

The allusion to new members induces us to mention that there was a net increase of 325 new Fellows elected last year; while the members elected for this present year, which is only a few weeks old, amount to 113, and this without the aid of band or balloons, fireworks, or frivolity. A "hall for horticulture" is, at the present moment, not a matter of practical politics. However desirable it may be, there is no chance of getting it just yet, even if the President's suggestion, that the guinea Fellows should double their subscriptions, were carried into effect. There must be central places in London more suitable for exhibitions than the present Drill Hall, which was only regarded as a makeshift, but which has proved a very serviceable one.

The subject of the awards of Medals, which the Council thinks has been carried on too lavishly, brought Mr. ALEXANDER DEAN and his brother, Mr. RICHARD DEAN, to their feet, and they represented the seething feeling of irritation at the new edict propounded by the Council. No doubt this matter can readily be adjusted, because clearly no slur was intended to be cast on the committees, whilst, on the other hand, there is no doubt that there is outside the Society a very prevalent feeling that the number of awards made is much too large, and that the reputation of the Society and the value of the awards would be much enhanced by a re-arrangement and simplification of the whole system of medal-giving.

In order that our readers may the better understand the position of affairs, it is necessary to give a slight account of what passed at the Floral and other Committees, held immediately prior to the general meeting:—

At the Floral Committee the paragraph in the Annual Report of the Council, circulated some days since, in which that body gave expression to the opinion that "there still appears to be a tendency to multiply unduly the awards recommended" by the various Committees, was, on the occasion of the meeting of the Committees on Tuesday last, followed by a letter from the Secretary, the Rev. W. WILKS, to the Chairmen of the Floral, Orchid, and Fruit Committees, in which the opinion of the Council was

reiterated, but in a fuller manner; the Council requiring that for the future the awards made to collections and groups should be determined by a Committee formed of three members of each Committee nominated by their respective Chairmen. Beyond the Chairman of the Floral Committee, who is a member of the Council, declaring that he thought the new arrangement a slur upon the committee—an opinion which was generally concurred in by a numerous-attended meeting, no discussion took place; but the chairman enforced his remarks by informing the committees that from the first meeting in January until the last in December, as many as 1248 entries were made of subjects which came before the committee. The awards made were as follows: 24 First-class Certificates, 209 Awards of Merit, 4 Cultural Commendations, and 4 Botanical Certificates. The number of Medals awarded during the same period was 266, and of this number 221 were awarded by the Floral Committee, and the remainder at the Temple Show by the judges. The Medals awarded by the Floral Committee to exhibits at the Drill Hall were 2 Gold, 18 Silver-gilt Floral, 18 Silver-gilt Banksian, 69 Silver Floral, 81 Silver Banksian, 7 Bronze Floral, and 26 Bronze Banksian.

The Fruit and Orchid Committees have followed practice of making Awards to collections of fruit and vegetables, or to groups of Orchids in a body. In the case of the Floral Committee a different course has been adopted; the chairman would nominate three or four members in his opinion best acquainted with the particular subjects staged, to act with himself as a jury, and they recommended the award of certain Medals.

In the course of his remarks on the letter received from the Council, the chairman expressed his conviction that no single Medal had been awarded that was not well deserved, and not till after the fullest consideration.

In the case of the Fruit Committee, an animated discussion also arose; and it must be admitted that a considerable majority of the members of both the Floral and Fruit Committees held that the new regulations put into force that day were, as the Chairman of the Floral Committee expressed it, a slight upon the Committee. The Orchid Committee took matters more philosophically, and whatever they felt they did not give much expression to it.

SOME of our readers may have already seen the following notice in the columns of the *Times*; but the matter is, or may be, of such importance to our fruit-growers, that we do not hesitate to reproduce it, and at the same time to publish a note from one of our valued American correspondents, who is in a specially good position to know what amount of injury is being effected:—

"BERLIN, February 3.—Considerable excitement has been caused for the last few days in German trading circles by an order prohibiting the importation of fresh American fruit. On January 30 the Customs officials at Emmerich received telegraphic instructions from the Minister of Finance to stop the importation of fresh fruit from America, and on the following day a similar order was issued by the Hamburg Senate. The reason for this step was stated to be the discovery of a species of plant-bug, the *Aspidiotus perniciosus*, or San José plant-bug, in a case of American Apples. Protests against this measure secured from the Hamburg Senate permission, first of all, for the further export of consignments to England, and subsequently for consignments of American Apples that had already reached Germany to be delivered to the addressees. To-day the subject occupied the attention of the Federal Council, which decided that 'the importation of fresh fruit is only forbidden when the same is discovered to contain the plant bug.' The prohibition does not extend to dried fruit. The importation of windfalls, packing material, and plants, is altogether forbidden."

The San José Scale.

The official *Reichsanzeiger* of Feb. 4 publishes the following, which we take from the *Daily News* :—

"The report published by the American Agricultural Department on the San José shield-louse gave rise to an official enquiry here into the circumstances under which fruit is imported from America. On January 29 Professor FRANK found on some Pears which were obtained from a consignment of Californian fruit, entered in the Hamburg free port, numerous living shield-lice, in a condition to propagate, which the Professor found to be absolutely identical with the

States, notably Oregon and British Columbia, have taken against it. The official organ then continues :—

"It is thus the unavoidable duty of the Government to give efficacious protection to the home fruit industry from the threatening danger of disease. Therefore is the importation of living plants and fresh plant-refuse entirely prohibited, and the importation of fruit and fruit-refuse prohibited, subject to the condition that at the port of entry of the said imports investigation of the consignment establishes the presence of the San José shield-louse."

the most severe and general fright which we have known for many years. The very mention of the San José scale is enough to put any horticultural assemblage into a fidget. The horticultural papers are full of talk about this insect ; almost every experiment station in the land has published some sort of an account of it ; and all the horticultural meetings, now in full blast throughout the States, show the most intense interest in any information which is offered on this subject. The San José scale is, in truth, doing serious damage in many widely-

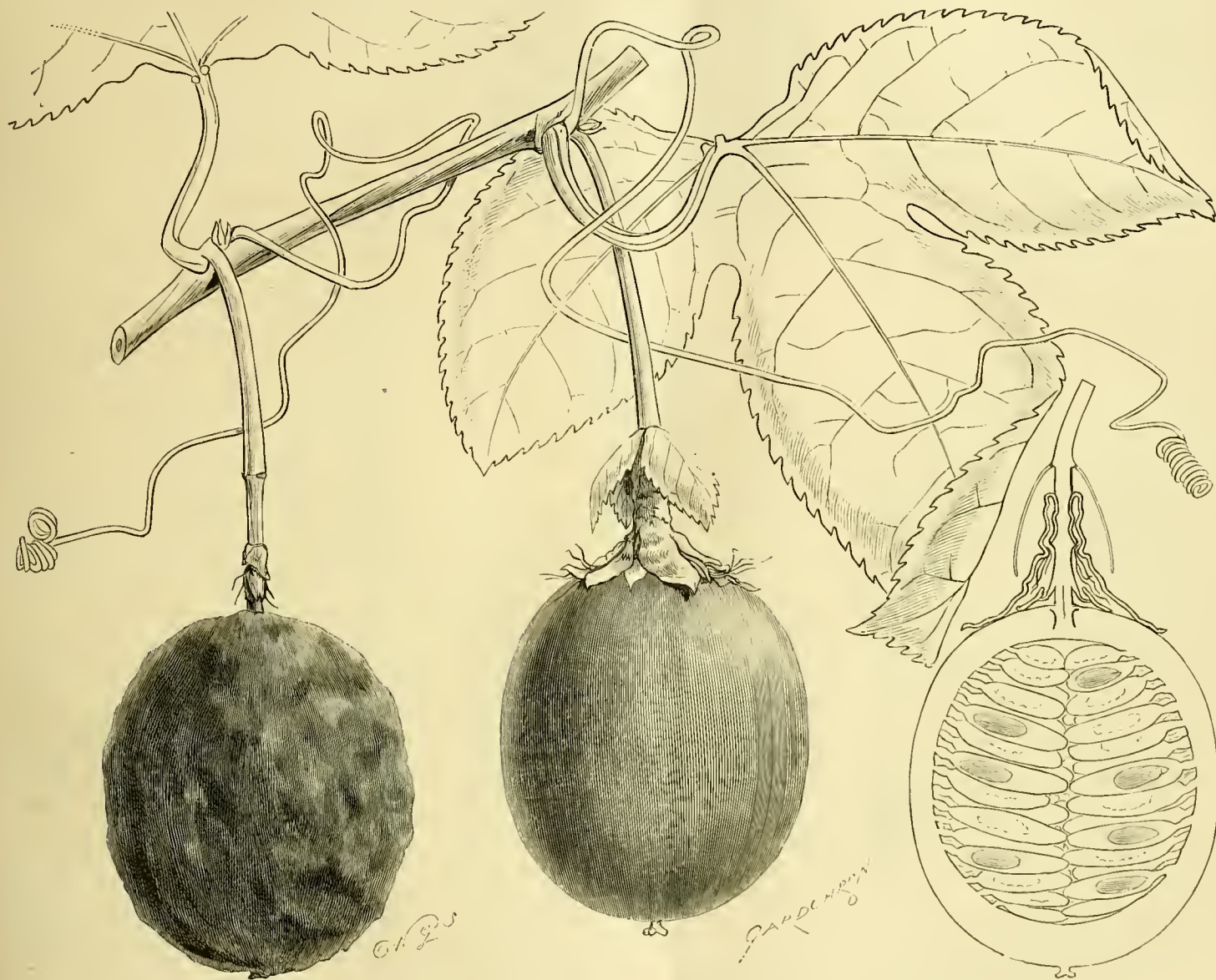


FIG. 36.—PASSIFLORA EDULIS : FRUIT DEEP VIOLET. (SEE P. 102.)

true San José shield-louse. He consequently expressed the opinion that the home fruit cultivation was exposed to great and imminent danger by the importation of American fruit. A conference of other important specialists, and the reports of the Imperial Office of Health, confirmed this view in every point, and thus the necessity for prompt measures of protection was fully demonstrated."

The *Reichsanzeiger* goes on to describe in connection with the publication of the Washington Agricultural Bureau the extraordinary perniciousness of the San José shield-louse, as well as the measures which various American

The *Reichsanzeiger* shows by the example of the Phylloxera the danger of not adopting immediate measures of protection, while contrariwise the Colorado-beetle was kept out in time. The journal announces the regulations which are to be adopted internally to combat the shield-louse, and expresses the hope that the German fruit industry, on which a large community depends for its livelihood, may thus be protected from danger.

Our own correspondent writes from Vermont :—
"The fruit-growers of America are suffering

distributed localities ; and its spread has been so thorough and so insidious that tree planters are entirely bewildered, and know not where to look for protection. This scale was introduced into eastern nurseries from California. When it was first brought to the attention of entomologists a few years ago it did not seem to be widely distributed, nor to have done very great injury, and we were assured that it could not live over a very wide range of territory, especially northwards. Since that time, however, the successive limits set for it have been successively passed, and the pernicious insect has

come to light in the most unexpected places, and under the most disconcerting circumstances.

It is worse, both actually and prospectively, in the Southern States, but it has been found in Canada, and there is not a single fruit region on the continent for which immunity can now be promised with any confidence.

The scale is terribly omnivorous, feeding upon all sorts of fruit-trees and bushes, and attacking with equal appetite the deciduous trees and shrubs of the lawn. No practicable remedy has yet been found, except total destruction of the affected plants. A fungous parasite has been discovered, but its general applicability remains to be demonstrated. Several States have passed quarantine or inspection laws, but rather in desperation than in hope, for it really seems to be impossible to prevent the distribution of the insect without stopping entirely the distribution of plants. It is plainly to be seen, however, that the present excitement is out of proportion to the damage actually accomplished, and nobody would feel defrauded if the future should fail to justify it. At any rate, it is comfortable to hope that our fright will die away and leave us not so very much worse than we were before, as it did at the historical invasion of the Colorado Potato-beetle. *F. A. Waugh.*"

PASSIFLORA EDULIS.—The interest which has been shown of late in edible Passion-flowers, induces us to give an illustration (fig. 36) of the fruits of the true *P. edulis*, which we are enabled to do through the kindness of W. H. MAXWELL, Esq., of Munches. As will be seen, there ought to be no possibility of confusion with the edible fruits of the section quadrangularis, known by their square and winged stems and large leaves and fruits. The purple fruits of the present plant contain a highly perfumed pulp in the cells surrounding the seeds, and the flavour is as delicious as the perfume, but it is only by wide extension of meaning that it can be called edible. The plant is a native of South Brazil, where there are one or two nearly allied forms, some with yellow-coloured fruits, and nearly, if not quite as fragrant. The plant must be treated as a warm green-house or stove-plant, and a good look-out should be kept for mealy-bug. They may be planted out in the border, but require to be checked, as they ramble far and wide.

LINNEAN SOCIETY.—On the occasion of the meeting of this Society on Thursday, February 17, 1898, at 8 P.M., the following papers will be read:—1, "On the Genus *Arenaria*," by F. N. WILLIAMS, F.L.S., &c.; and 2, "On the Histology of the Salivary and other Glands of the *Colubridæ*," by W. G. S. WEST.

BOTANICAL MAGAZINE.—The plants figured in the February number are:—

Richardia Elliottiana, Knight, tab. 7577; the largest species of the genus, with broad cordate leaves marked with white blotches, the spathes are rich yellow; see *Gard. Chron.*, July 30, 1892, p. 123.

Paphiopedilum (Cypripedium) *Chamberlainianum*, O'Brien, tab. 7578; *Gard. Chron.*, Feb. 20, 1892, fig. 34; native of Sumatra.

Daphne Blagayana, tab. 7579, Frazer; native of Styria; *Gard. Chron.*, Feb. 21, 1880, p. 245, fig. 47.

Dasytachlys Drimiopsis, Baker, tab. 7580; a Liliaceous plant from tropical South-east Africa, with fibrous roots, short erect stems, broadly linear, recurved, glabrous leaves, spotted at the base and terminal crest, crowded racemes, flowers white with a short tube, and a 6-lobed limb about one-sixth inch.

Anemone vernalis, Liun., tab. 7581. An alpine species closely allied to *A. Pulsatilla*, which, though common in Scandinavia and in the Alps, does not occur in Britain. The flowers are creamy white with a central tuft of yellow anthers.

MEDALS.—We see that the French Society of "Chrysanthemists" (we have not the word yet) has

decided that medals shall be replaced by diplomas, so that more funds shall be available for the publication of the journal, *Le Chrysanthème*. A reduction in medals is very desirable nearer home, lest with each one, as now given, the honour be proportionately diminished!

STOCK-TAKING: JANUARY.—We take it to be a healthy symptom that the year's accounts open with an increased demand for articles of food and drink—dutiable or duty free; of course, in the matter of cereals the increase, as to great part is in money value, witness our averages of prices from week to week, and the Transatlantic "ring-keepers" are reaping their reward, we at home paying the piper on a high-priced loaf. In dutiable articles Tobacco shows a slight reduction, but work having now resumed throughout the engineering world this diminution will doubtless be reversed in next report. The increase on the imports foot up at £140,823. The falling off is to be found in Tobacco (£445), chemicals, &c. (£61,705), raw materials for textiles (£3,264,315); and the major increases are to be found in food, duty free (£1,405,567); ditto., dutiable (£549,905); manufactured articles (£532,692), metals (£200,685), raw materials for sundry industries and manufactures (£337,058). The following excerpts have their usual value:—

IMPORTS.	1897.	1898.	Difference.
Total value ...	£ 39,775,668	£ 39,916,491	£ +140,823
(A.) Articles of food and drink—duty free ...	11,847,359	13,252,926	+1,405,567
(B.) Articles of food and drink—dutiable ...	1,816,827	2,366,732	+549,905
Raw materials for textile manufactures ...	11,566,396	8,302,081	—3,264,315
Raw materials for sundry industries and manufactures ...	3,239,851	3,576,509	+337,658
(A.) Miscellaneous articles ...	1,180,270	1,376,612	+196,342
(B.) Parcel Post ...	120,275	130,881	+10,606

Of course, tariffs have to do with the falling off in textile materials: more reason for opening up new fields for senders, as to which there is now some stir, and doubtless the desired end will be attained. By the way, in the matter of Hops, we have to note an increase of 47,741 cwt.; paper pulp has gone down 5834 tons; Clover and grass-seeds have gone up by 10,621 cwt.; cotton-seed is in excess over January, 1897, by 22,846 tons. Potatoes are especially conspicuous in the following table:—

IMPORTS.	1897.	1898.	Difference.
Fruits, raw:—			
Apples ... ..bush.	280,901	295,551	+14,650
Cherries ... .."	...	...	"
Plums"	...	3	+3
Pears"	2,458	3,060	+602
Grapes"	1,381	1,001	—380
Unenumerated"	36,630	56,441	+19,811
Onions"	491,264	443,749	—47,515
Potatoes ... ..cwt.	23,465	739,955	+716,490
Vegetables, raw, unenumerated ... ..value	£64,017	£75,019	+£11,002

In the matter of Apples, our German friends have assumed that they have discovered a louse in the American Apples placed on their markets—they are now shut out, as was the pork some time since to keep from their fatherland the pest of trichinina, found in American pork, nowhere else! Possibly the loss to Germany may be a gain to us—at any rate, the supply has gone up, as will be seen by the table.

EXPORTS

now claim attention; and really the general unsettlement of things all over the world might well excuse a greater comparative deficit than that of £554,832. The total for the past month is £19,231,404, as against £19,786,236. The great decreases are to be found in yarns and textile fabrics, £502,480; in

machinery and millwork, £405,997; apparel, &c., £96,442; articles of food and drink, £10,475, &c.; whilst in the recorded increase we find metals, and articles manufactured therefrom, except machinery, £237,532; in raw materials of £134,956; all other articles, £67,967. The "raw materials," it may be noted, are made up in great part of coal, fuel, cinders, &c. We may be allowed to add that, so far as we can see, a more favourable record of trade may be reckoned on.

THE ISLE OF WIGHT HORTICULTURAL IMPROVEMENT ASSOCIATION.—The monthly meeting was held at Newport on Saturday last, Mr. J. H. PERKIN, Los Altos, Sandown, in the chair. Mr. J. HYGATE, gardener, The Briary, Cowes, gave an excellent address on "The Cultivation of Grapes in a Cool House."

THE AUTHOR'S CIRCULAR.—A new magazine "The Official Organ of the English School of Journalism" (295 Strand, W.C.), is admittedly devoted to the commercial side of literature, as a medium between writers and publishers. We hope it will find favour with all branches of the profession, and it will assuredly do good service to young authors if it persuade them not to flood the market with unsaleable wares, and to publishers if it can introduce them to really valuable contributors.

THE COST OF LONDON PARKS.—We take the following from the *Daily News*. Sir JOHN LUBBOCK has been trying to make a point against the London County Council on the ground of the cost of the parks. There is no more popular branch of the Council's work than its splendid management of the parks and open spaces under its care, and the cost of maintenance, calculated after Sir JOHN LUBBOCK's manner, by the acre, is wonderfully cheap compared with the cost of some of the royal parks with which the County Council expenditure is comparable. For example, if you are going to divide your cost by your acreage, the sum voted in the Estimates for the maintenance of Hyde Park, St. James's Park, and the Green Park is £36,650, for a combined acreage is a little over 500, or between £73 or £74 an acre. The expenditure per acre complained of on the part of the County Council is £28. The absurdity of a calculation by the acre in the case of the parks is shown by the comparison of the cost of the royal parks above-mentioned with Richmond Park, which costs the county £2,250, but is of so large an acreage that, measured in this way, its cost is a little less than £1 the acre. The County Council's park expenditure includes the wages of constables who patrol the commons and open spaces for the protection of the public and their children, and many other charges which have little to do with acreage.

AUNT KATE'S GARDENING BOOK.—This handbook (published at the *People's Journal* Office, Dundee), offers, at the low price of a penny, forty pages of information concerning the cultivation and exhibiting of plants. It is illustrated, and the utility of the directions given may be depended on.

PUBLICATIONS RECEIVED.—*May's Practical Methods to Ensure Relief and Cure without Drugs*. This is the abbreviated title of a book on home-doctoring, by E. & B. MAY, the wisest direction being to lose no time in sending for a qualified medical man, and sedulously to avoid quack remedies, however insidiously advertised.—From the New York Agricultural Experiment Station come the following Bulletins: Popular edition of No. 125 on *Tomato Forcing*; No. 129, *Report of Analyses of Commercial Fertilisers for the Spring of 1897*, L. Van Slyke. No. 130, *A Bacterial Disease of Sweet Corn*, F. C. Stewart; No. 131, *Results with Oak Smut in 1897*, C. P. Cloëe; No. 132, *Source of Milk Fat*, W. H. Jordan and C. G. Jenter; *Spraying in 1897 to prevent Gooseberry Mildew*, C. P. Cloëe.—From the U. S. Department of Agriculture: *List of Publications relating to edible and poisonous Mushrooms*, J. A. Clark; *Farmers' Bulletin*, No. 63, *Black Rot of the Cabbage*, E. F. Smith.—From the University of Vermont, Agricultural Station: *Bulletin* 62 (Jan. 1898)

Home-grown Grapes in Vermont, F. A. Waugh; No 61, *Hardy Apples for Cold Climates*, F. A. Waugh.—*Botanical Magazine* (Tokyo) Dec. 20, 1897.—*Native Guano* (Native Guano Co., Blackfriars, E.C.)—*Wiener Illustrirte Garten Zeitung*, January, 1898.—*Bulletino della Società Botanica Italiana*, No. 5, 6, and 7, for October, November and December, 1897.—*Nuovo Giornale Botanico Italiano*, January, 1898.

PLANT PORTRAITS.

ECHEMA CYLINDRATA, Lindman, Metz, in *Gartenflora*, t. 1447, February.

HYACINTH "HAOYN," single, violet-coloured flower, *Florilegium Haarlemense*, t. xiii.

LAVATERA TRIMESTRIS, *Garten*, January 22.

NARCISSUS: 1, *Pseudo-Narcissus*, double flower, Van Sion; 2, *N. incomparabilis*, fl. pl. orange-phoenix; 3, *N. incomparabilis*, sulphur-phoenix; 4, *Sulphur Crown*, *Florilegium Haarlemense*, t. xv.

TREE-PEONY, Madame Gustave Croux, rose-pink, *Revue Horticole*, February 1.

TULIPS: 1, Duchess of Parma, red with yellow margin; 2, Thomas Moore (rendered *Morus*!), pinkish-buff; and 3, Ophir d'Or, yellow, *Florilegium Haarlemense*, t. xiv.

MARKET GARDENING.

PREPARATION OF THE GROUND IN THE NEW HOUSES.

THE next work needing to be done is the preparation of the ground in the several glasshouses for the reception of the respective crops. The houses intended for Vines, Peaches, and Tomatos (exclusively) should be trenched between 18 inches and 24 inches deep, according to the natural depth of the soil, breaking-up the bottom of the respective trenches with a digging-fork, and laying thereon about 3 inches thick of good manure. Cover this with the top-spit, which, if lumpy, should be broken with a spade in doing the work, following with another layer of dung, the remaining portion of good soil being placed on the top, and so on, until the work is done. The houses allotted for Peaches and Nectarines should be planted as soon as the houses and ground are ready. Indeed, for that matter, and in order to save time, the trees may be planted—say 15 feet apart—before the borders are double dug or trenched by simply opening good-sized holes, breaking up the bottom spit, manuring, &c., as recommended above, and planting the trees therein; covering the roots with the natural soil enriched and well mixed with, say, one-third or one-fourth, according to circumstances, of short manure. In completing the planting of each tree, take hold of the stem with the hands, and give a couple of short pulls, or rather shakes, in an upward direction, in order to let the soil well in among the roots. Early Alexander, Amden June, and Hale's Early Peaches, and Rivers' Early and Lord Napier Nectarines are capital varieties to grow, the fruits being extra early, good size (when well grown), fine colour and full of flavour.

Tomatos planted in rows from 18 inches to 24 in. apart, and running from the central pathway to the brickwork on either side, and set at 1 foot from plant to plant in the row about a month or six weeks hence, will, in themselves, yield satisfactory returns for the houses thus planted for the first two or three years, by which time the Peach and Nectarine trees will have fully established themselves and completely covered the trellises, extending over the greater part of the 14 or 15 feet rafters with fruit-bearing wood, the trees having been, as a matter of course, trained on the "extension system," as advocated from time to time in the *Gardeners' Chronicle*. Tomatos may be planted in the same way in vineries, and for about the same period of time, as in the case of Peach-houses. Of course, the number of plants grown in each row will considerably diminish each succeeding year, as also the weight of the crop obtained therefrom, by reason of the increased shade cast over the ground-space by the Vines and Peach-trees. The lateral and leaf-growths must be kept persistently thinned, that is, the side-shoots must be pinched hard back to the main stem, and the leaves cut back to within one or two pairs of leaflets during the whole fruiting stage of the plant's growth, so as to concentrate all the strength of the individual plants into the production of flowers and fruit.

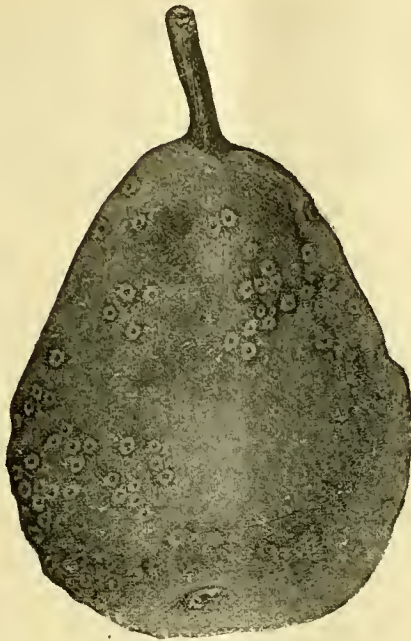


FIG. 37.—SAN JOSÉ SCALE ON Californian Pear, moderately infested: natural size.



FIG. 38.—SAN JOSÉ SCALE. Female scale enlarged.

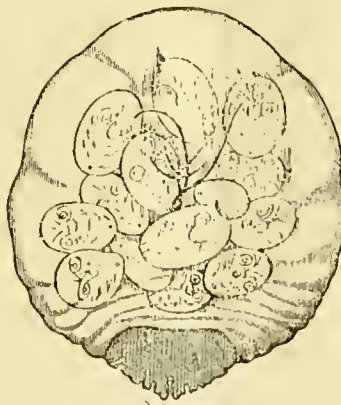


FIG. 39.—SAN JOSÉ SCALE. Adult Female, containing young: greatly enlarged.

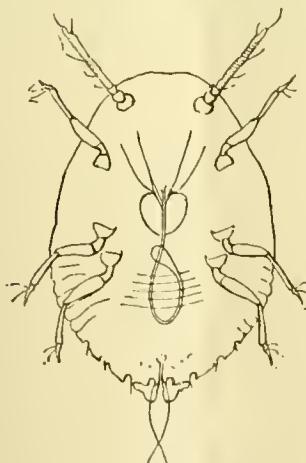


FIG. 40.—SAN JOSÉ SCALE. Young Larvæ: greatly enlarged.

These figures are taken from the Bulletin No. 121 of the Michigan Agricultural Experiment Station. See p. 100.

In the case of Vines, when they have made about 3 feet of growth above the rims of pots, they should be planted about 2½ feet apart in the border at from 9 inches to 1 foot from the division-walls or piers, making the soil firm about them in planting. It is much better to let the young Vines attain to a height of 3 or 4 feet before being transplanted than to plant them earlier, inasmuch as the tops of the young canes are at that length (3 or 4 feet) brought well up to within a few inches of the glass.

A house intended for Cucumbers need only have a trench taken out about 2 feet wide and 9 inches deep the entire length of both sides, keeping close to the piers or division-walls, as the case may be. Break up the bottom soil in each trench with a digging-fork, then lay on a good coating of well-rotted manure, and cover this lightly with some of the best soil excavated from the said trenches. This done, insert sticks long enough to reach the first wire in the trellis (to which they should be secured) at 2 feet asunder along the centre of each trench, and at these several points make hillocks, each consisting of about 1 bushel of compost composed of three parts best available mould and two parts good manure. On each of these hillocks put one Cucumber plant as soon as the soil has become warm. Press the soil moderately firm round the roots in planting, and afterwards afford tepid water to settle the soil about the roots. Rollisson's Telegraph (true), Carter's Model, Webb's Bountiful, and Rochford's Market are excellent ones to grow for the supply of the market. H. W. Ward, Rayleigh.

FOREIGN CORRESPONDENCE.

SOLANUM WENDLANDI.

THIS beautiful climber flowered splendidly in Stuttgart, for the first time in the open, in the nursery of Mr. Wm. Pfitzer. Planted out at the end of May, in a warm and sunny position, and in a nourishing not too heavy soil, against the wall at the end of a greenhouse, it soon covered all the available space on the trellis, which had to be extended. It bloomed throughout July and August, notwithstanding the unusually rainy and inclement weather, which prevented the *Daturas* (*Brugmansias*) from displaying their full beauty. After flowering, the *Solanum* was in October cut well back and planted in a tub, and then placed in a warm greenhouse, in order to become well established before the winter. After furnishing material for propagation in the spring, the process will be repeated.

These remarks may perhaps lead to the more extensive planting out of this and similar plants in the south of England and in other warm and sheltered localities. Beside the above-mentioned *Daturas*, of which D. Knighti, fl.-pl., is periodically covered with its fine white flowers, various other sub-tropical plants, generally cultivated in pots or greenhouses, are planted out. *Hibiscus rosachinensis* and its varieties, for instance, given a suitable soil and a somewhat sheltered position, will bloom beautifully, daily producing fresh flowers. H. R. W.

VARIORUM.

TOBACCO-DUST AS A REMEDY FOR SLUGS.—

Observing the note on p. 30, headed, "To destroy Snails," I may say that about twenty years ago a Tobacco importing company in Liverpool—I think it was the Richmond Tobacco Company—tried the experiment of grinding up the refuse tobacco, like coarse snuff, and selling it at a very cheap rate, mixed with lime to satisfy the Excise, as a remedy against insects in gardens. I think the wholesale price was only 9s. per cwt. For several years I used it, with very good results, especially against slugs; but the firm gave up making it, not meeting, as they told me, with a sufficient demand, and I have not been able to get it since. C. Wolley Dod, Edge Hall, Malpas.

HOME CORRESPONDENCE.

THE GARDEN CHARITIES, CANVASSING.—A friend sends me for inspection no fewer than six post cards he had received, asking for votes for one Orphan Fund candidate. If others were appealed to in the same ratio, what a wasteful, wanton expenditure does this represent. I make it a rule never to vote for any candidate thus canvassed for, to place all candidates, whether they have influential backers or not, on the same footing; canvassing on behalf of any candidate should immediately be followed by disqualification. With respect to the Gardeners' Benevolent, Mr. Crump urges me to use my influence to secure more gardener subscribers. What is the good of importuning anyone in the face of such a rebuff to subscribers as that given at the recent election? Is there anyone who is satisfied with the results? Until the executive alters the rules so that none but subscribers of at least five years, or their widows, shall be eligible to be candidates for the pensions, can it be expected that gardeners generally, to most of whom a guinea is a great consideration, will become subscribers. A good deal has been made of certain unsigned papers being returned at the last election; were these papers sent to the secretary direct or to some member of the Committee or active promoter of some candidate who had importuned for them? None the less, were all voting-papers numbered as issued, the number on each corresponding with the secretary's list, not a paper need be signed; and a real ballot would be instituted. Nothing is easier, and would be opposed only by those who may wish (as they should not) to ascertain how So-and-So voted. *A. D.*

THE FLORAL COMMITTEE AND ITS AWARDS.—That the Council of the Royal Horticultural Society succeeded in irritating the members of its committees, there can be no doubt; and vigorous expression was given to the dislike generally entertained at the new regulations—and it also found utterance at the Annual General Meeting, held on Tuesday last. The Council appears desirous to restrict the number of awards made to new plants, flowers, fruits, and vegetables, or such of them as may appear to call for recognition. Occasionally, an old subject is produced in exceptionally fine character, something that possesses great merit, but which has practically fallen out of general cultivation, and an award is made to it as an appreciation of its value. It should be borne in mind that at the present time the work of hybridising, crossing, and selecting plants is being actively pursued; raisers and exhibitors multiply, and there is a constantly increasing number of novelties seen at shows and meetings, more especially during the summer months. It should be remembered that the Floral Committee is a large body—too large in some respects; the members vary in their partialities for certain flowers, and when something is presented to them which they conceive to surpass anything they are acquainted with, they are desirous that it should be recognised. A bare majority suffices to carry an Award; and in the case of some special subject, known intimately to only a very few, but a small majority suffices. Comparatively few subjects find unanimous recognition from the members of the committee present, and when such an Award is made, the object shows the highest possible development. There are at times sharp divisions, the committees being almost equally divided, and a vote or two more on one side than the other carries the day. Whether a stated majority of the committee be required to carry an Award, is perhaps both doubtful and inexpedient in practice under the present methods of appointing to the committees. In this respect there is much room for improvement. *R. D.*

MORISIA HYPOGÆA.—For the information of readers who may wish to add to their stock of this beautiful little alpine plant, spoken of by your correspondent, "E. S., Woking," on p. 89, I may say that in addition to the methods of increase by seed or cuttings it can be readily propagated by root-cuttings. A plant carefully lifted will yield a good many of these. My method is to cut them into lengths of an inch, which I place in pots of sandy soil, keeping the upper part of the cutting on a level with the surface of the soil, and placing the pot in a greenhouse. I prefer the month of March for making the cuttings. In a rather dry soil the *Morisia* does not flower so freely as in one with more moisture, and in this garden the flowering period is shorter than it is further inland. Do any of your readers know if this plant ripens its seeds in our climate? I am doubtful if it even produces any;

and on reference to-day to an article written by an expert on hardy flowers, which appeared in a contemporary (*The Garden*) in 1891, I observe that the writer says:—"It is said to ripen seed, but plants which flowered freely with me have not produced any; at any rate, I have failed to find it, although I have carefully scraped the soil away from the roots." I have grown it here for about six years, and have been unable to find seeds. It is a beautiful little plant, with leaves glossy as with varnish, and flowers of a clear yellow hue. *S. Arnott, Carsethorn, Dnm-fries, N.B.*

—All lovers of alpine plants ought to be deeply indebted to "E. S., Woking," for bringing this lovely little species under notice (p. 89), for it is certainly well worthy of a place in every collection. For brightening up the rock-garden it has few equals; and considering how accommodating it is, and how easily it may be increased, it ought to be more freely grown. I should like to know if it is known in gardens under any other name [No.], as I find no mention of it in *Nicholson's Dictionary*, while one very seldom sees it catalogued. *W. J., Rife.*

ABNORMAL FLOWERING OF CALANTHE VEITCHII.—We have had two bulbs of the above named, grown singly in separate pots here, throwing two flower-spikes, and flowering at the same time, viz., one at the bottom of the bulb, whence the flower-spikes naturally comes, and the second spike breaking through the top of the bulb; the spike at the top of the bulb showed seven buds, one carrying five perfect flowers, and the other four. I shall be pleased to know if any readers of the *Gardeners' Chronicle* has had a similar experience, and if it is unusual. *W. R., Cullindis.*

EXPORTATION OF SEEDS AND PLANTS.—The season is now at hand when many nurserymen, including myself, will be receiving numerous small orders from Germany for plants such as Dahlias, &c. The cost of sending small lots by rail and steamer is expensive and very inconvenient compared with the parcel-post; but here we are handicapped by the postal authorities prohibiting plants with roots being sent by parcel-post. The reason for this regulation is difficult to understand, seeing that we do not suffer from Phylloxera to any extent in Great Britain. Could not something be done by our traders to try and get rid of such a grievous hindrance to trade? And I, for one, and I have no doubt a great many readers of the *Gardeners' Chronicle*, would be glad to elicit the opinions of others in regard to this matter. *John Green, Derham.*

MORE ABOUT FREESIAS.—I herewith enclose for your inspection some cut scapes of *Freesias*. One spike with eleven individual flowers, one with ten, others with nine and eight. I have a large number of scapes with eight and nine flowers. Under ordinary cultivation, the number of individual flowers on a scape of *refracta alba* will average from three to seven; and I have many with two and three laterals averaging from twenty to thirty flowers from one bulb. My object in writing is to ascertain if any readers of the *Gard. Chron.* have ever produced a larger number of individual flowers from one bulb than eleven on a scape? I notice in bulb catalogues that eight blossoms are shown in illustrations; nine flowers are all I can produce on *Freesia refracta alba*, and eleven on *F. Leichlini major*, under good cultivation. If more has been produced on these varieties, I have still something to learn of their cultivation. My treatment is similar to that recommended by Mr. Swan in the *Gardeners' Chronicle* for January 1 of this year, which I read with much interest. *S. Kerry, Hatfield Peccol, Essex.*

PASSIFLORA ALATA.—I was much interested in the remarks made by D. T. Fish in your copy of January 22. It would appear to me that as Mr. Fish so constantly and regularly fruited the form he describes as *P. edulis*, and that such fruits were served at table and eaten with avidity, or as he says, "few fruits were more greedily devoured," they must have been the same as those figured—and which I have grown as *P. alata*. I have had four names given me as the correct one, viz., *P. quadrangularis*, *P. edulis*, *P. macrocarpa*, and lastly, *P. alata*; the latter it now seems to me to be the correct one. Mr. Fish complains of the size of the figure of leaf on page 449, Dec. 25. I am surprised myself at the diminutive form, measuring $3\frac{1}{4}$ inches in breadth, by 4 inches in length, minus the leaf-stalk, and it must have been reduced in the engraving [the leaf was purposely reduced to fit our columns though, unfortunately, this was not stated. Ed.]. I now send four leaves which measure $7\frac{1}{4}$ and 8 inches in breadth, and

10 inches in length, minus the leaf-stalk. These leaves were taken from a plant that still remains in the old pine stove here, and since Dec. 11 has had no fire-heat at all. In fact from that date no attention whatever has been given to it. A spell of frosty weather, however, would now soon cause it to shrivel and die away. *W. Swan, Bystock.*

PASSIFLORA EDULIS.—I think Mr. D. T. Fish is on fairly safe ground in his advocacy of *Passiflora edulis*; whether the one usually grown be the species or a garden variety, I do not pretend to say; though the editorial note, "Something to suck, but little or nothing to eat," probably holds good. I never tasted a fruit grown under glass. In places in latitudes 33° S., I have seen the plants flourishing without protection, and subjected to 7° or 8° of frost without injury, which may bear out Mr. Fish's remark about cool treatment. *Passiflora quadrangularis* would not succeed under like conditions. To be appreciated, the fruit must ripen on the plant, and be eaten immediately after removal, as it deteriorates within a few hours. To this fact may be attributed the frequent adverse opinions of those who have partaken of tropical fruits, an instance of which occurred in the *Gardeners' Chronicle* for November 6 last, when noticing the Mangosteen. Again, the dried Litchie fruits, which reach our markets, convey no idea of what the fresh fruit is like when freshly gathered, being as little like the latter as a Muscatel Raisin is to a well-ripened Muscat of Alexandria direct from the Vine. Persimmons, or Japanese Date-Plums, have lately been noticed, the taste for which will in many cases have to be acquired; but speaking generally, the Passion-fruit, Litchie, and Mangosteen, are agreeable to our tastes generally. Unlike the Banana, I do not think that any of the fruits I have noticed will endure the adverse conditions of a long sea voyage, and it must be always admitted that fruit consumed in a ripe state as taken from the tree is to be preferred. *C. B.*

SOPHRONITIS GRANDIFLORA.—One of the finest examples of this plant is to be seen in the gardens of J. C. Waterhouse, Esq., Collar House, Macclesfield. The plant is contained in a cork basket, 9 by 6 in., and 2 inches deep, and carries sixty-six fully developed flowers. There are numbers of smaller but equally healthy and well-flowered plants under Mr. Hall's care. *J. Robson.*

THE GREEN COLOUR IN FLOWERS OF VON SION DAFFODILS.—This has been a much debated subject for years through the *Gardeners' Chronicle*. This being one of the earliest of seasons of which we have any record so far as flowers are concerned, thousands are in full show here, and such yellow, solid flowers I have never before noticed. Will some better judges than myself explain this? I have my own opinion about green blooms. I should say such early growth and bloom should make the bulbs of great value for forcing next year. *Wm. Baylor Hartland, Ard-Cairn, Cork, Feb. 8.*

PRUNING YOUNG STANDARD APPLE-TREES.—My experience with regard to young Apple-trees, after several years close observation, leads me to say that if you wish to ruin them follow up the method practised by your correspondent, Mr. Kettle. For if there is any one thing that will cripple a young tree, it is to over crop it. Half a sieveful of good fruit, as stated by Mr. Kettle, from a tree three years old from the bud is a very heavy crop indeed, and I greatly fear that as time goes on he will find that instead of his trees making good specimens in a short time, just the reverse will occur; a tree once overtaxed when young, takes years to recover its vigour. What are we then to do with young trees received from a nursery furnished with 5 to 7 shoots 2 feet in length, as we to allow these to go unpruned? Most practical men know that if these shoots be left at full length, fruit in quantity will be borne the following year; and if these fruits are allowed to remain their weight will drag down the shoots, and if not supported perhaps some of them will be torn off at the base—and further, these shoots will fail to produce a free growth the following year, and frequently a fruit-bud will form at the points, and they will fail to thicken. I tried the practice once as an experiment, and had after a couple of years' to shorten them back in order to force a fresh growth, so that instead of gaining I lost time. Young fruit trees should be well planted, and in order to obtain an evenly-balanced crown, shorten the leading shoots more or less, according to their strength, cutting back the small laterals to within 2 inches of the main shoots, or removing them in some cases entirely, and taking care when shortening

the leaders to cut to a bud pointing in the direction in which the next growth is needed. Leading shoots, if of normal strength, I usually leave about 12 inches in length, weak ones at less than that. The knife should be carefully used for the first few years, and when the branches have acquired strength to bear fruit, let the crop be heavy or light, in accordance with the vigour of the trees, but do not overcrop any young tree that inclines to bear fruit before it has sufficient strength to bear and grow freely. In reference to Mr. Ward's advice, I consider his teaching is sound and practical. *H. Markham, Northdown, Margate.*

WATER-BOUQUETS.—The note by "A. G. B." on these very interesting objects induces me to say that with one exception, at Farnham, I had never seen them elsewhere exhibited except at Basingstoke, where, a few years since, if not still, they constituted a very pretty and an attractive class. The method of securing the stems of the bunch of flowers to be immersed in water to the dish on which stood, varies in practice. No doubt, where stout glass-dishes, some 9 or 10 inches in diameter, each having in the centre a small knob or loop to which the bunch could be securely tied, it would be the simplest way; then, in any case, whatever method or weight be used, a few flakes of nice moss secured to the dish covers the lower portion of the stems. At Basingstoke, where the bouquets were first introduced by a gentleman, whose name I forget, some used a lump of clay to secure the flowers to the dish, others a piece of lead; whatever was used, however, was always neatly covered. The bunch of flowers should not be large, be neatly grouped, and thinly arranged. Single flowers seem to be best. When immersed the water materially magnifies them. The glass-shade or cover should be fairly stout, as the body of water contained, when the flowers are properly immersed, exercises material lateral pressure. The shade or cover should not press upon the flowers, and in placing it over them in a large tub or tankful of clear water, sideways, no air must be allowed to enter. As "A. G. B." has mentioned, when the glass-cover is in place, the whole can be lifted out of the water, be stood on a tray to run dry, and then be more pleasing as an ornament if stood upon an elevated glass dessert-stand. *A. D.*

VEGETABLES.

EGG-PLANT.

THOSE persons who like the fruit of this plant as prepared on the Continent, should sow seeds next month and in March on a hot-bed, and prick out the seedlings on another hot-bed in about a month after germination has taken place. They might be planted out in May at the foot of a south wall, in very warm parts of this country, but are better for receiving glass protection. They will not do under the shade of Vines or Peaches, and should have a pit or house to themselves, or at least a cold frame. Here it is advisable to grow only the early-ripening varieties, as Early Purple Dwarf, and Early Long Purple. There are many varieties but these are too late in ripening to be suitable for cultivation in this country. The plant likes a fairly adhesive, not over-rich soil, and to be potted firmly. Having set a crop of fruit, the later blooms should be removed, and manure-water occasionally applied if the soil is permeated in every part with roots.

GOURDS.

Beyond the two or three varieties of Cucurbita Pepo (Vegetable Marrow), we are singularly deficient in our appreciation of the food to be found in many of the Gourd family, and even those we have got accustomed to eating, are partaken of in their very least nutritive state of development. What sustenance can be found in an unripe Vegetable Marrow? As an adjunct to a well loaded dinner table it is an allowable vegetable, but on the scantily provided poor man's table, it should have no place. With Pumpkins or Gourds it is very different. These are not considered edible until they are quite ripe, in which condition their nutritive value is greatly increased, and they are capable of being kept sound throughout the winter, and even after being cut open they remain in good condition for several weeks. Moreover the large seeds of some of the varieties are as pleasant eating when stripped of the outer cover-

ing as filberts. There are of Pumpkins, the Mammoth, the Etampes, the Boulogne Gray, the Warted Marrow. The Turks' Cap, Canada Crook Neck, and of Marrows to be eaten when ripe the Patagonian Squash, and Bash or Crook Neck, and Custard Seeds should be sown in March, and the plants put out under hand-lights in May, the lights being kept over the plants so long as the weather is cool.

NEW INVENTION.

LAWTON'S PATENT POT-SUSPENDING CLIP.

THIS simple invention will be found useful in a variety of ways, amongst which may be specialised the suspension of plants in pots for conservatory or other decorations, either against a wall or from the roof. To the Orchid-grower it is invaluable, as by its use a few moments only are required to make any pot or pan ready for suspension, without any of the usual difficulties and unsightliness caused by the binning round of string, wire, &c. The clips can

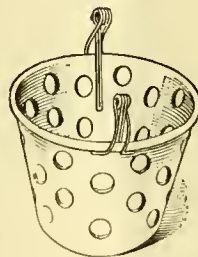
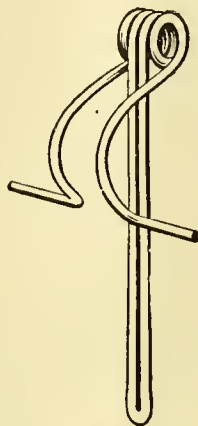


FIG. 41.—SUSPENDING FLOWER-POT CLIP.

with equal facility be used for suspending cut flowers in vases, &c. (it may even be used for an ordinary tumbler), thus getting over one of the greatest difficulties in floral decorations for walls. It also makes an excellent substitute for the wire holdfasts used for holding plates, plaques, &c., against a wall, and has the advantage of being considerably less in cost.

The inventor has had these clips in use for some considerable time, and can guarantee their efficacy and durability. The sole agent for the sale of these suspenders is Mr. J. George, Horticultural Sundries-man, 14, Redgrave Road, Putney, S.W.

MARKET NOTES.

APPLE CROP OF TASMANIA

WE have received from the Agent-General, Tasmania, the information that the number of cases of fruit to be sent for the home market will be fewer than on previous occasions. There may be three reasons for this—the crop may promise to be a short one, it may pay best to send only a supply of the very finest samples, or if the crop in Australia threatens to be a short one, then it will require to be supplemented by supplies from Hobart.

NURSERY NOTES.

MESSRS. CARTERS' PRIMULAS.

AN extensive and interesting display of Chinese Primulas may be seen at the present time in the nursery that Messrs. Carter & Co. have at Forest Hill. Dropping in on a bright bleak morning, a day or two since, in response to an invitation, we had the pleasure to carefully inspect the entire collection, and to contrast or compare the peculiarities of the numerous varieties. Some idea of the show these Primroses make may be obtained from the fact that seven of the long-span roofed houses are more or less filled with them, which we were told numbered upwards of 7000. The condition of the plants is surprising, as they have been all produced from seed sown towards the end of last July, which appears to us rather late in the season. They were only put into the pots in which they flower about two months ago—in December—and upon turning out a plant from a 5 or 6-inch pot, the roots are seen to be just gripping the soil loosely; yet every one is producing an abundance of bloom. We may have seen sturdier habited batches of plants at establishments surrounded by purer atmosphere than is possible in London urban districts, but seeing that the plants at Forest Hill are from seed sown but six months ago, and have been grown in the locality mentioned—well, they would cause many a visitor some reflection.

The varieties are numerous, and some of them are very much like each other, the difference being one of tint only. They are arranged in batches, and from so many plants, the average colour, habit, or size of any variety is easily obtained.

Of the single-flowered strains, the purest white appears to be Elaine, an erect variety, with dainty flowers of moderate size. In general effect, however, it is excelled by Queen, a handsome Fern-leaved variety with profuse and bold flowers that open white and become very pale blush afterwards. There is a Lilac Queen too, the shade being somewhat novel, and a Rose Queen, but this is much too light in colour for such a designation, being barely a pink. We saw no approach to a yellow Primula at Messrs. Carters', but the colour that usually stands for blue in these plants, is seen in double and single types. The single one created quite a distinct effect. Princess May is a giant form, and probably the largest flowered of all the Primulas at Forest Hill; sturdy in habit, there is substance in leaves and flowers, and the truss of bloom is a strong one, the colour of the flowers being pink and white, and giving an effect of blush pink or rose. Of the bright colours, there are Magenta, Vermilion, and Carter's Scarlet. All of these are very good, in colour especially. From the first named, however, an improved strain has been obtained, and from the few plants of this to be seen, it promises to be valuable. Vermilion is good, and Carters' Scarlet being side by side with it, the difference is well shown. There were good batches of either, and the Scarlet being one of the earlier varieties to flower, had set, and was already swelling a good number of seeds. Ruby, on the contrary, is one of the latest, and its first ruby-red blossoms, with bright eyes, were at their best above the Fern-like foliage—probably the only batch that the "polleniser" had not been over with his brush. Carmine is a variety excelled by few; it produces large, handsome, fringed flowers, and robust foliage. Venus has flaked flowers, and may be had with plain or Fern-like foliage. Amongst other single forms, we may mention one known as Salmon, a pretty tint of salmon-rose colour.

Messrs. Carters' double Primulas consist of semi-double sorts that are propagated by seed, and come true by this method—a type that has ousted to a large extent the really double Primulas that must be propagated by cuttings, and are found somewhat difficult of cultivation in gardens. Snowflake is one of the earliest of these to flower, and is a capital variety for furnishing blooms for cutting. It has very small foliage, and pale, slender petioles, the flowers open blush, but soon become white. The

Princess of Wales is also nearly white, but the flowers are flaked a little with rose. In Prince of Wales, an early rose-coloured double, we noticed a very charming flower that seemed to possess several shades of colour, and the margins of the petals are prettily crimped. Aurora has moderately small flowers, but the variety is exceptionally free; the blooms are salmon-pink. Blue Rosette has much the same tint as the single-flowered one already noticed. Vivid is only less bright than Double Scarlet. The former has a shade of carmine in it, but the latter is a truer scarlet. Lilac Queen is a shade of some novelty, approaching deep lilac.

We were much interested in a batch of plants of

THE "BOUQUET" PRIMULA, a "variation," in which the calyx of the flower is foliaceous to an extent that it surrounds each flower, and forms a perfect button-hole, as it were. Another singular circumstance in the habit of this plant is that previous to the usual central truss of bloom developing, there are produced from the base around the spike of the truss [but not from it] five blooms, upon solitary stems, 3 inches high, the calyx in these being extremely foliaceous. In the truss there is a foliaceous development of the bracts and of the calyx under each bloom, but not so marked as in the early "basal" flowers. The blooms are white when first open, but become blush afterwards. Independently of the flowers, the plants are exceedingly distinct in appearance; the leaves are of great substance, and crimped and cut unusually. The plants we saw had been raised from seeds, and there was a fairly good batch; but seeds may not be bought yet, and it seems uncertain when it may be catalogued, or even if it will not have to be propagated by cuttings. It seeds very little, and the effect of using repeatedly pollen from normal varieties might cause the reversion of the type altogether.

A splendid batch of Cineraria plants was observed that will soon bloom.

SOCIETIES.

ROYAL HORTICULTURAL.

FEBRUARY 8.—The second meeting of the committees of this Society for the present year was held on Tuesday last in the Drill Hall, James Street, Westminster. There was a moderate display, not quite so much in extent as is sometimes the case on the occasion of the Annual General Meeting of the Society, when an augmented number of Fellows in attendance is comparatively certain. Orchids, however, were rather more numerous than they have been at several recent meetings, and there were large and excellent collections of Chinese Primulas. An exhibit of Freesias in pots from an amateur (the Hon. H. C. LEGGE) were well deserving of praise. The comparative mildness of the weather enabled the cultivators of hardy plants to show some of their earliest treasures from the open ground, and others in pots or pans that have been protected in cold-pits. Other interesting exhibits of miscellaneous description are remarked upon below. There was not much fruit staged, but in the "flavour" classes the competition was somewhat remarkable, and many good Apples and Pears were exhibited. The Fruit Committee granted two First-class Certificates, one to an Apple, previously distinguished by an Award of Merit, and the other to a Pear that has been in cultivation many years. Considerable irritation was caused among the various committees by an intimation from the Council that it was proposed to invest the privilege of granting Medals to meritorious exhibits of plants, flowers, or fruit, that formerly had belonged to each committee, in a body composed of several gentlemen to be deputed by each committee, and this body (not the whole committee) would award Medals to Orchids, and other plants, fruits, or such exhibits as were thought worthy of reward. The intention of the Council was good, it being none other than to lessen the number of the awards, and thus increase their comparative value. The means taken, however, were not judicious or desirable, and at the Annual Meeting, Sir Trevor Lawrence, in answer to spokesmen from the Floral and the Fruit Committees, was understood to say that he would recommend the Council to rescind the proposal, and suggest that the several committees select two or three of their members to award honours to collections whilst the rest were engaged with novelties—a practice that has obtained in the Floral Committee for some time past. Thus, a fruit-grower will not be called upon to appraise the value of a group of Orchids, or vice versa, and the sensibilities of the committee-men will be respected.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. John Fraser, Owen Thomas, J. T. Bennet-Poë, H. B. May, R. Dean, J. H. Fitt, Geo. Stevens, W. Howe, Jas. Hudson, J. Jennings, C. J. Salter, R. B. Lowe, H. Selfe-Leonard, J. Fraser, W. Bain, Chas. Jeffries, J. D. Pawls, Geo. Gordon, Chas. E. Shea, Jas. Walker, J. W. Barr, E. T. Cook, H. J. Cutbush, H. Turner, Chas. E. Pearson, H. J. Jones, and Geo. Paul.

Messrs. R. & G. CUTBERT, Southgate, exhibited a collection of varieties of Crocuses in pots; also Scilla sibirica and S. s. alba, and a number of straw-coloured Roman Hyacinths.

Bougainvillea spectabilis, from Her Grace the Duchess of CLEVELAND, Battle Abbey (gr., Mr. W. Camm), created a sensation. It was shown as three long and beautiful sprays, literally smothered with flowers the whole length, and the colour was irresistibly attractive. This species less commonly flowers than B. glabra, but the colour of the flower is more telling than that one. The orange-flowered Bignonia venusta was shown in sprays from the same establishment.

A most commendable exhibit of Freesias in pots was made by Major Hon. H. C. LEGGE, Fulmer, Slough (gr., Mr. J. G. Mowbray). This fragrant exhibit consisted of about 100 5 and 6-inch pots, and all of them contributing a good share of blooms.

MESSRS. JAS. VEITCH & SONS (Ld.), King's Road, Chelsea, contributed such Chinese Primulas that could hardly have presented better cultural effect, or greater excellence of strain. In the double and single flowered sorts, the quality was good, the plants possessing healthy, well developed foliage, and the flowers being remarkable for size, strength, and brilliant colouring. The double-flowered varieties included Rose, Salmon, Lilac, Crimson, Blue, and White, each distinct in batches of a dozen or more plants. Then there were singles, Chelsea Blue, Rose, Fringed Red, Fern-leaf Lilac, Gigantic Blue, New Salmon (very fine), Fringed White, Chelsea Crimson, Gigantic White, Fern-leaf Blue, Gigantic Rose, and Gigantic Red. A few plants of a white-coloured variety of Stellata in the centre of the group were as pretty as showy, and a few "Blue" Primroses were shown from the open ground, where they had been slightly protected.

One half of one of the long tables was well filled with excellent Chinese Primulas, from Messrs. H. CANNELL & SONS, Swanley, an exhibit that created more effect than any other in the hall. The ordinary florist's Primulas were capably represented by such varieties as Cannell's White, White Swan, Cannell's Red, Swanley Blue, Duchess of Fife (pink), Dr. Nansen (white), Cannell's Pink, Swanley Giant (fine rose), Her Majesty (white), Glow-worm (red), Victory very bright rich magenta), White Perfection, and others, all single-flowered varieties. The "Lady" strain, or varieties of P. stellata, hort., was shown, and several new varieties, obtained from crossing the "Lady" with ordinary florist's varieties, were capital. The best of these was Mrs. R. W. Cannell. This has very large white flowers, produced on stout stems considerably above the dark foliage, characteristic of the "Lady." Lady Whitehead, though similar, is a cross less removed from the "Lady" type, and is more floriferous, has a greater number of trusses, flowers of rather less substance, and creates a beautiful display. The whole collection showed excellent cultivation.

Two dozen beautiful blooms of the Rose Catherine Mermet were shown by Mr. GEO. MOUNT, from his Rose Nurseries at Canterbury.

Mr. THOS. S. WARE, Hale Farm Nurseries, Tottenham, showed hardy flowering plants, such as Daffodils, Iris reticulata in several varieties, Saxifragas, Primula dentata, and others, Anemone pulsatilla, and the curious little Scilopius Bigelowi, figured in *Gardeners' Chronicle*, March 3, 1894, p. 267. Fritillaria plurifolia, a plant also recently figured in these pages, was shown.

From Messrs. PAUL & SONS, The Old Nurseries, Cheshunt, came a collection of Christmas and Lenten Roses, also Cyclamen Coum zonale, several of the minute growing Saxifragas, and sprays of Alnus glutinosa aurea, with male flowers; and of Amygdalus Davidiana alba, &c., which appears to be very beautiful this season.

Messrs. BARR & SONS, King Street, Covent Garden, made their first exhibit of the season by staging some varieties of Hellebores, also beautiful plants in pots of the pretty Lachenalias in variety, Crocuses, Scillas, Muscari, and other interesting "forerunners" of spring.

Mr. JOHN RUSSELL, nurseryman, Richmond, Surrey, exhibited a group of varieties of Enonymus of various sizes and degrees of variegation. Some of them were trained as standards. Also some large plants of Daphne Mezereum, and varieties called D. M. atro-rubrum and alba, Andromeda Catesbaei, with deep purple foliage, were remarked.

Messrs. WM. PAUL & SONS, Waltham Cross Nurseries, Herts, contributed a group of Camellia plants in pots; these were well-cultivated specimens, and represented choice varieties; many blooms were exhibited in boxes also. But for Messrs. Paul's commendable practice of exhibiting Camellias each season, the plant would be almost absent from the shows of the Society.

Sir TREVOR LAWRENCE, Bart., Burford, Dorking (gr., Mr. Bain), exhibited a plant in flower of a white Henchera—H. sanguinea alba; also many spathes of a hybrid Anthurium, named Dr. Lawrence. The large spathes of this hybrid are flesh-pink in colour, and the spadix, which is almost at right angles with the spathe, is pale yellow, that becomes whitish towards the tip (First-class Certificate).

S. G. LUTWICHE, Esq., Eden Park, Beckenham (gr., Mr.

S. Paterson), exhibited a plant of Iris chinensis, pale lilac or heliotrope-coloured.

Messrs. R. WALLACE & Co., Colchester, showed plants of Iris histrio, I. histrioides, I. reticulata, &c.

A capital exhibit of Ferns was made by Messrs. J. HILL & SONS, Lower Edmonton. Many of the choicer species and varieties of the better known genera were shown as finely-cultivated plants. Adiantums, Davallias, Nephrolepis, Pteris, and Gymnogrammas, were most numerous.

A miscellaneous group of forced flowering-plants, arranged with fine-foliaged species, was shown by Messrs. J. FRED & SONS, Upper Norwood.

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. J. O'Brien (Hon. Sec.), H. Little, H. M. Pollett, de B. Crawshaw, H. Bullantime, H. J. Chapman, W. H. Young, F. J. Thorne, W. H. White, E. Ashworth, J. Jaques, E. Hill, T. W. Bond, W. Thompson, C. Winn, S. Courtald.

The show of Orchids was a good one, and those staged by Sir TREVOR LAWRENCE, Bart. (gr., Mr. W. H. White), were specially interesting, as demonstrating the fine proportions to which Orchids may be grown when afforded good cultivation over a series of years. Among the principal objects were a grand specimen of Sophronitis grandiflora, which came into the Burford collection in 1889, and it is now bearing forty-four flowers; Angreum pertusum, with twenty-five spikes, in 1878; Masdevallia polysticta purpurea, with many spikes, in 1878; Dendrobium x endocharis, in 1879; Angreum eburneum, Odontoglossum Andersonianum, and some plants of O. crispum, each of which had been many years at Burford, and had acquired great strength; Brasso-Cattleya x Lindleyana, with twenty-four flowers; Odontoglossum asperum, bought in 1881; and a fine example of the pretty Epidendrum Endresii. Of the hybrids raised at Burford, there were shown Dendrobium x Juno, D. x Burfordiense, Cypripedium x hirsuto-Sallieri, Calanthe x gigas, &c.

Messrs. JAS. VEITCH & SONS, Ltd., Royal Exotic Nursery, King's Road, Chelsea, staged a fine group in which were three of their new hybrid Phalenopsis, viz., P. x Cassandra (Stuartiana x rosea x) which made its first appearance, had neatly-formed flowers of a bluish-white colour, and slight rose base to the sepals and petals; the long and peculiarly-shaped lip was rose-colour, with close brown spotting on a yellow ground at the base; P. x Vesta (Aphrodite x rosea leucaspis) had bright rose-pink flowers with some effective darker marking on the lip; and P. x Hebe (Sanderiana x rosea) resembled a large P. intermedia Portei. In the middle of the group was placed a fine batch of Dendrobiums principally hybrids, and embracing the pretty D. x Dule, D. x euosinum, and D. x e. leucopteron; D. x Dominianum, D. x endocharis, D. x Wardiano-japonicum, D. x Cybele nobilis, D. x splendissimum, and D. x s. grandiflorum, D. x Schneiderianum, the pretty orange-scarlet hued D. subclausum, D. secundum, and D. s. album, D. aureum, D. crassinode album, &c. Other showy things in the group were Lælio-Cattleya x Myra (Trianel x L. flava x), the reverse of that originally shown, bearing clear yellow flowers, with rose-pink veining on the front of the lip; Cypripedium x Enid (bellatulum x Spicerianum), C. x Lathamianum superbum, with very large and handsome flowers; Calanthe x Ariadne, with creamy-white flowers, bearing some purple blotches; Epidendrum O'Brienianum superbum, with dark scarlet flowers; E. x elegantum, E. x Endresio-Wallisii, Cattleya x Miranda, and other showy hybrids.

NORMAN C. COOKSON, Esq., Oakwood, Wyham, near Newcastle (gr., Mr. W. Murray), showed Calanthe x splendens (rosea x Bryan), with brilliant carmine-crimson flowers, darker towards the centre, but not exhibiting an "eye," as usually seen in hybrids of its class (Award of Merit); Phæo-Calanthe x grandis (Phaenograndifolia x Calanthe Bryan), the best of its class, bearing a stout, erect inflorescence of many showy flowers, in which the sepals were white, tinged with rose at the base, the broad, open lip white on the outside, and rich purple on the surface, with a few white stripes (Award of Merit). Mr. Cookson also showed the fine yellow Lælio-Cattleya x Doris (L. harpophylla x C. Trianel); Cypripedium x Sandro-superbum, C. x Youngianum superbum, C. x Morganie, and a fine specimen of C. x Ceres (Spicerianum x hirsutissimum).

Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen, (gr., Mr. W. H. Young), showed the true Lælia pumila prestans; and Odontoglossum Schillerianum, a rare and pretty variety with yellow flowers spotted with red.

P. CRAWLEY, Esq., Waddon House, Croydon (gr., Mr. Harris), had the honour of receiving the only First-class Certificate awarded at the meeting for Lælia anceps Crowleyana, a very handsome pure white variety with broad open lip on the side lobes, on which were a few pale purple lines. The flower in form somewhat resembled L. a. Schroderiana.

Messrs. HUOH LOW & Co., Clapton, staged an effective group, including varieties of Cattleya Trianel, of which the handsome C. T. plumosa with a distinct purple feather on the petals was the best; Dendrobium nobile Ballianum, D. x splendissimum grandiflorum, D. x Luna, D. crassinode, and other Dendrobiums; the showy Cypripedium x Frewetti, C. x Swinburni splendens, varieties of Odontoglossum crispum, O. Hallii, O. tripudians, O. Rossii, &c.

Messrs. B. S. WILLIAMS & Son, Victoria and Paradise Nurseries, Upper Holloway, staged a group consisting of Cologne cristata, Chatworth var.; Cypripedium x Williamsianum, C. x Pitebrianum, Williams' var.; C. x Ashburntonie superbum, C. x calophyllum, C. x Spicerianum purpureum, C. Sallieri aureum, C. x politum, varieties of C. x

Lecanum, *C. x cananthum superbum*, *C. x nitens*, *Lycaste fulvescens*, with many flowers; *Ludia anceps Williamsiana*, varieties of *Odontoglossum crispum*, *Dendrobium*, &c.

W. THOMPSON, Esq., Walton Grange, Stone, Staffordshire (gr., Mr. W. Stevens), showed *Odontoglossum* excellens spectabile, a very fine variety, which secured an Award of Merit on April 7, 1896; and *O. hystrix grandis*, a beautiful variety of *O. luteo-purpureum*.

Mrs. WINGFIELD, Amptill House, Amptill (gr., Mr. Empson), showed a plant of *Dendrobium*, Wingfield's variety of noble, with large and well-formed flowers. Dr. B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), sent the Rosefield variety of *Odontoglossum* Rossi rubescens, a fine flower, the white parts of which are tinged with purplish-rose. F. W. MOORE, Esq., Royal Botanic Gardens, Glasnevin, Dublin, sent a flower of *Maxillaria Augusta Victoria*, somewhat similar to those of *M. Sanderiana*, but with clear white sepals and petals, and a broad yellow lip having purple markings.

Mr. THOS. DUCK, Abbey Wood, showed a *Cypripedium* that is alleged to have been imported with *C. insignis montanum*, but which bears a marked resemblance to a small, pale form of *C. x Lecanum*. Major JOCEY, Sunningdale Park (gr., Mr. P. J. Thorne), showed a finely-flowered example of a large and pretty *Lycaste Skinneri*. Messrs. F. SANDER & Co., St. Albans, showed the pure white *Calanthe rubens alba*; a grand form of *Cattleya Trianae* of the C. T. Backhouse class, *Lycaste Skinneri alba*, &c. PERCY B. TOMES, Esq., showed a very finely coloured *Cattleya Trianae*. Mr. C. W. CHARD, Clapton, showed *Cypripedium Chapmani*; and a fine group of *C. insignis* was staged by LORD FOLEY (gr. Mr. J. Miller), Ruxley Lodge, Esher.

Mr. Wm. Murray, gardener to NORMAN C. COOKSON, Esq., Oakwood, Wylam, showed specimens of his patent Orchid-stand, an excellent invention for raising plants above the staging, and obviating the destructive fungoid growths which nearly always occur where inverted pots or no elevators are used.

Fruit Committee.

Present: Philip Crowley, Esq., in the chair; and Messrs. T. Francis Rivers, G. W. Cummins, M. Gleeson, Jos. Cheal, Jas. H. Veitch, W. Poupart, A. F. Barron, J. Wright, Alex. Dean, Jno. A. Laing, J. W. Bates, C. Herrin, Geo. Woodward, W. J. Empson, F. Q. Lane, Jas. Smith, G. Reynolds, W. H. Divers, G. Normao, J. Willard, and Robt. Fyfe.

Mr. Geo. MOUNT, the indefatigable exhibitor of early Roses, contributed a collection of Apples, representing Cox's Orange Pippin, Dumelow's Seedling, Mère de Ménage, Court Pendu Plat, Newton Wonder, Bismarck, and others, in a capital state of preservation.

Out of many dishes staged, the best Pear in the flavour competition was *Passe Crassane*, shown by Mr. Geo. Woodward, gr. to ROGER LEIGH, Esq., Barham Court, Maidstone. These fruits were first-rate in quality, and the variety was further honoured by the award of a First-class Certificate. The fruits were from trees on the Quince, growing against a west wall, in light rich soil. The 2nd place was won by the variety *Olivier de Serres*, shown by Mr. W. H. Divers, gr. to the Duke of Rutland, Belvoir Castle, near Grantham. Mr. Divers had also the best Apple, in Cox's Orange Pippin, from an orchard standard on Crab stock, in strong clay; Mr. G. Woodward's *Calville Blanche* was 2nd.

A First-class Certificate was granted to Apple Lord Hindlip, shown by Mr. JNO. WATKINS, Pomona Farm, Hereford. This proves to be an excellent dessert or culinary fruit, and a late keeper. It has previously been granted an Award of Merit and was figured in these pages Jan. 25, 1896, p. 115.

Messrs. SUTTON & SONS, Reading, showed two flats containing twenty-four magnificent heads of Sutton's Superb Early White Broccoli, the heads being 8 inches in diameter, and beautifully firm, and of a creamy white.

Mr. O. THOMAS, Royal Gardens, Frogmore, showed a nice-looking Cucumber, named Every Day, the fruit resembling Kenyon's Improved. It is a cross between Rochford's Market and Dickson's All-the-Year-Round (Award of Merit).

A Cultural Commendation was awarded to S. W. KERN, Esq., Barnes, for some first-class Mushrooms.

Medals Awarded by Joint Committee.

Silver-gilt Flora to W. Paul & Son for a Group of Camellias.

Silver-gilt Flora to J. Veitch & Sons, for Orchids and Primulas.

Silver-gilt Banksian to J. Hill & Son, for Ferns.

Silver-gilt Banksian to Sir Trevor Lawrence, for Orchids.

Silver Flora to Messrs. H. Cannell & Sons, for Primulas.

Silver Banksian to Hon. H. C. Legge, for Frezias.

Silver Banksian to Mr. G. Mount, for Roses and Apples.

Silver Banksian to Lord Foley, for *Cypripediums* and Fruit.

Bronze Banksian to Messrs. J. Peed & Son, for Plants.

Bronze Banksian to Messrs. Low & Co., for Orchids.

HIGHGATE AND DISTRICT CHRYS-ANTHEMUM.

FEBRUARY 2.—At the Annual General Meeting of this Society, held on the above date, the financial statement showed that the income during the past year amounted to £165 6s. 6d., of which £63 7s. 6d. was subscribed, and the expenditure to £161 2s. 2d., of which £87 2s. had been awarded in prizes.

The last exhibition was considered very satisfactory, and it was decided that the show in November next should be held in the Holloway Hall, and extend over two days. Mr. C. F.

CORY-WRIGHT was elected President in succession to Mr. Birks, and Messrs. McKercher and W. E. Boyce were re-elected Treasurer and Secretary respectively.

BECKENHAM HORTICULTURAL.

FEBRUARY 4.—This Society has arranged an interesting course of lectures to supplement the ordinary weekly meetings, at which various papers are read, and discussions follow. The first lecture took place on Feb. 4, when Mr. James Martin, from Messrs. Sutton & Sons, of Reading, gave an interesting and instructive discourse on the *Gloxinia*.

The lecturer reviewed the history of the *Gloxinia* from its earliest known date, 1739, and described its evolution to the state of perfection to which this beautiful plant has been brought. Mr. Martin interspersed his remarks with many witty anecdotes.

The chair was taken by Mr. H. J. Jones, of Ryecroft, and a charming group of *Cyclamen*, brought by Mr. T. Crosswell, created a deal of interest, and drew from both chairman and lecturer the highest compliment for cultural skill.

TREES AND SHRUBS.

PRUNUS DAVIDIANA ALBA.

This lovely shrub has been in flower in the Messrs. G. Cooling & Sons' Nurseries, Bath, since Jan. 20, and is so still. *Prunus Davidiana rosea* showed a few blooms on the 1st inst. Of this variety there are also some fine specimens in flower at Wayfield Bathaston. Both are still uncommon plants in our gardens. We also have in flower since February 1, *Cornus mascula*, the giant *Saxifraga*, the Wilson blue Primrose, *Prunus Pissardi*, *P. sinensis flore-plena alba*, *P. fl.-pl. rosea*, and others. F. Nash.

ENQUIRY.

"He that questioneth much shall learn much."—BACON.

Will any correspondent kindly inform "J. M." of the present address of the raiser of *Rent payer* Pea?—a Mr. Brownhill as he believes.

THE WEATHER.

[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.		
	Above (+) or below (—) the Mean for the week ending February 5.	ACCUMULATED.				More (+) or less (—) than Mean for the Week.	No. of Rainy Days since January 2, 1898.	Total Fall since Jan. 2, 1898.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 2, 1898.
		Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since January 2, 1898.	Below 42°, difference from Mean since January 2, 1898.					
Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.	Inch.					
0	2 +	8	23	+ 55	— 14	9 +	32	8.2	16	13
1	4 +	12	24	+ 66	— 141	1 —	19	1.8	30	17
2	5 +	28	11	+ 100	— 152	0 aver	14	1.2	39	17
3	5 +	26	14	+ 52	— 151	1 +	13	1.4	34	15
4	5 +	26	11	+ 63	— 165	1 —	12	1.1	23	14
5	5 +	27	7	+ 65	— 166	2 —	11	0.9	27	16
6	4 +	20	8	+ 81	— 140	2 +	25	4.7	17	12
7	4 +	25	6	+ 81	— 153	6 +	21	4.2	21	14
8	4 +	30	3	+ 78	— 121	1 —	18	2.5	26	16
9	3 +	26	9	+ 75	— 116	6 +	22	3.4	9	9
10	4 +	35	4	+ 105	— 102	2 —	18	3.4	11	14
"	4 +	41	0	+ 88	— 59	3 —	19	1.2	25	27

The districts indicated by number in the first column are the following:—

0, Scotland, N. *Principal Wheat-producing Districts*—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. *Principal Grazing, &c., Districts*—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending February 5, is furnished from the Meteorological Office:—

"The weather during this period underwent a considerable change; at first it was extremely mild, with rain in the more northern and north-western districts, but with generally dry weather in the south and south-east. Later in the week, however, rough, cold weather set in, and equals of wind and cold rain, hail, or sleet extended from the north to all parts of the Kingdom.

The temperature was very high during the earlier part of the period, but subsequently fell very quickly. The averages for the whole week were, however, again above the mean, the excess ranging from 2° in 'Scotland, N.' to 5° over the greater part of England. The absolute maxima were recorded between Jan. 30 and Feb. 1, and were very high for the time of year. In 'England, E.' (at Gellerton on Tuesday), and in 'England, S.' (at Dublin on Sunday), the thermometer rose to 61°; and in 'England, N.E.' (at Shields and Durham) to 60°. Elsewhere the maxima ranged from 59° in the 'Midland Counties' and 'England, N.W.' to 54° in 'Scotland, N.' and the 'Channel Islands.' Towards the end of the week the daily maxima were low, in many instances less than 40°. The lowest of the minima were registered, as a rule, on the 5th, and ranged from 23° in 'England, S.W.'; 24° in 'Scotland, N.'; and 25° in 'Scotland, E.'; to 29° in 'England, N.E., N.W., and S.'; and 'Ireland, N.'; and to 39° in the 'Channel Islands.

"The rainfall was much more than the mean in 'Scotland, N.', 'England, N.W.', and 'Ireland, N.', and slightly in excess in 'England, E.' and 'Scotland W.' In 'England, N.E.' the mean was just equalled, but in all other districts the fall was again less than the normal.

"The bright sunshine exceeded the mean over Scotland and in nearly all the English districts, but over Ireland and in 'England, S.W.' there was a deficiency. The percentage of the possible duration ranged from 34 in 'England, E.'; and 30 in 'England, N.E.' and 'Scotland, E.'; to 17 in 'Scotland, W.'; 16 in 'Scotland, N.'; 11 in 'Ireland, S.'; and 9 in 'Ireland, N.'"

* This is the highest reading of which there is any record in Dublin in January. The record dates from 1871.

MARKETS.

COVENT GARDEN, FEBRUARY 10.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arums, 12 blooms...	2 0-3 0	Mignonette, dozen	...
Azalea, doz. sprays	0 6-0 9	bunches	2 0-4 0
Bouvardias, pr. bun.	0 6-0 8	Narciss, various, per	dozen bunches
Ornamentals, pr. doz.	1 0-3 0	...	1 6-3 0
Chrysanthemums,	...	Orchids:—	...
per doz. bunches	9 0-18 0	Cattleya, 12 bms.	6 0-9 0
Daffodils, doz. bun.	5 0-8 0	Odontoglossum	...
Eucharis, per dozen	3 0-4 0	crispum, 12 bms.	2 0-4 0
Gardenias, dozen	...	Pelargonium, scar-	...
blooms	6 0-9 0	let, per 12 bun.	6 0-8 0
Hyacinth, Roman,	...	— per 12 sprays...	0 6-1 0
doz. bunches...	4 0-9 0	Roses, Tea, per doz.	0 6-1 0
Lilac, French, per	...	— yellow (Pearls),	...
bunch	3 0-4 0	per dozen	2 0-4 0
Lilium Harris, per	...	— pink, per doz.	2 0-4 0
doz. blooms	4 0-6 0	— Safrano, p. doz.	1 0-2 0
Lily of the Valley,	...	Tuberose, 12 bms.	0 6-0 9
dozen sprays	0 6-1 6	Tulips, 12 blooms...	0 6-1 3
Maidenhair Fern,	...	Violets, 12 bunches	0 9-1 0
per 12 bunches...	4 0-8 0	— Parme, French	3 0-4 0
		White Narciss,	...
		French, 12 bun...	2 6-5 0

ORCHID-BLOOM in variety.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, Californian,	...	Grapes, Gros Col-	...
box, 40 lb.	11 0 —	man, per lb.	2 0-3 6
— Newtown Pipp-	...	— Gros Colmar,	...
pies, half boxes	9 0-9 6	2nd quality,	...
— Canadian, brls.	18 0-24 0	per lb.	2 2-2 6
— Golden Russets,	...	— Muscats, p. lb.	3 0-8 0
per bag	24 0-25 0	— Belgium, p. lb.	1 0-1 3
— Nova Scotia,	...	— Almerias, per	...
barrels...	16 0-21 0	dozen lb.	6 0-8 0
— New York,	...	L mons, per box	14 0-20 0
cas s	1 6 —	— Sicily, per box	10 0-14 0
— French, cases...	9 0-10 0	Oranges, Jaffa, box	12 6 —
— Ilone - grown,	...	— Valencia, p. box	12 0-15 0
per bushel	8 6-12 0	— Seville, half	...
— Italian cases...	8 0 —	chest (200)	18 0 —
— Custard, p. box	6 0-10 0	— Tangerine, per	...
— Lady, p. box	1 3 —	box	1 3-1 6
Bananas, p. bunch,	...	Pine-apples, p. case	...
in cases	9 0-12 0	contg. 6 to 8, ca.	3 0-5 0
Cob-nuts, p. 100 lb.	25 0-31 0	— per case contg.	...
Grapes, black Ali-	...	10 to 12, each...	1 6-2 6
cante, p. lb.	2 0-3 0	Pears, Californian,	...
		per case	28 0 —

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Adiantums, p. doz. 4 0-12 0	Ferns, various, doz. 5 0-12 0
Aspidistras, per doz. 12 0-30 0	Ficus elastica, each 1 0-7 6
— specimen, each 5 0-15 0	Foliage plants, doz. 12 0-30 0
Azalea, per dozen 24 0-36 0	Genistas, per doz. 8 0-12 0
Cineraria, per doz. 8 0-12 0	Hyacinths, per doz. 6 0-12 0
Cyclamen, per doz. 12 0-18 0	Liliums, various,
Dracaenas, each ... 1 0-7 6	per dozen ... 18 0-31 0
— various, per	Marguerites, p. doz. 6 0-10 0
dozen ... 12 0-24 0	Palms, various, ea. 2 0-10 0
Ericas, various, per	— specimens, ea. 10 6-84 0
dozen ... 9 0-18 0	Primula, single, per
Evergreen shrubs,	dozen ... 4 0-6 0
in variety, doz. 6 0-24 0	Tulips, dozen, 0 0-9 0
Ferns, small, doz. ... 1 0-2 0	

VEGETABLES.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Artichokes, Globe,	Onions, per bag ... 9 0-9 6
per doz. ... 2 6 —	— cases ... 9 0-9 6
— Jerusalem, sieve	— Dutch, per bag 5 0-6 0
1 0 —	— French per bag 5 6-5 9
Asparagus, English,	— picklers, bag ... 2 0-3 0
p. bundle, 10)	Parsley, per sieve 1 0 —
heads ... 6 0-8 0	Parsnips, bag (cwt.) 2 0 —
— Spanish, bundle	Peas, French p. lb. 0 4 —
2 0-2 6	Potatoes, Fr., Kid-
— (Paris), Green,	neys, 24 lb. box 6 0 —
4 6 —	— Canary, p. cwt. 18 0-21 0
— Sprue ... 0 8 —	— Sweet, per lb. ... 0 2 —
Beans (Madeira),	— Old, per ton 95 0-120 0
per bskt. contg.	— (New Kidneys)
5 to 6 lb. ... 1 0-1 6	Channell Islands,
— Kidney (Chan-	per lb. ... 0 6-0 8
nel Islands), lb.	Radishes, Long, per
Beetroots, p. bush.	doz bunches ... 0 6-0 9
Broccoli, per doz. 1 0-1 6	— Round, dz. bun. 1 1 —
— Italian, package	Rhubarb, doz. bun. 1 3-1 6
of 18 ... 4 0 —	Salad, small, dozen
— sprouting ... 1 8 —	bunches ... 1 6 —
— Cherbourg ... 1 3-1 6	Seakale, per dozen 10 0-13 0
Carrots, Fr., flats ... 1 3-1 6	Spinach, p. bsk. ... 2 0 —
— Eng., bags, cwt. 2 0-3 0	Sprouts, Brussels,
Chicory, per lb. ... 0 2 ½	per sieve ... 0 9-1 0
Celery, per dozen	Strawberries, forced,
bundles ... 10 0-15 0	per lb. ... 10 0-12 0
Celeriac, per doz. 1 10 —	Tomatoes, English,
Cucumbers, selectd. 10 0-12 0	per lb. ... 1 3-1 6
Endive, Fr., p. dz. 1 9 —	— case, abt. 40 lb. 10 0-12 0
— Batavian, p. dz. 1 6 —	— box, abt. 4 lb. 3 0-4 0
Garlic, per lb. ... 0 4 —	— tray ... 2 0 —
Horseradish, per	Turnips, per bag ... 1 6-2 6
bundle ... 0 9-0 10	Turnip tops, per bag 1 6 —
Kale, Scotch, p. bag 0 9 —	Watercress, per doz. 0 6-0 9
Lettuce, per doz. ... 0 8 —	
Mint, per bunch. ... 0 8 —	
Mushrooms, per lb. 0 8 —	

POTATOES.

There has been no material alteration since last report. Present quotations:—Up-to-date, 110s. to 125s.; Maincrop and Saxons, 100s. to 120s.; Magnums and Bruce, 100s. to 110s.; Dunbar Maincrop, 125s. to 130s.; Blackland, 90s. to 100s. per ton. Foreign Ware, 3s. to 5s. per bag. French New Potatoes, 18s. to 23s. John Bath, 32 and 34, Wellington Street, Covent Garden, W.C.

Potatoes, Fr. Kid- s. d. s. d.	Potatoes, Sweet, per s. d. s. d.
neys, 24 lb. bx. 2 6 —	cwt. ... 25 0 —
Canary Islands,	Old, per ton ... 95 0-130 0
per cwt. ... 14 0-18 0	

SEEDS.

LONDON: February 9.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., state that there were but few seed buyers on to-day's market, and consequently no great amount of business was passing. Clover and Grass seeds generally show no important change in value; and meantime, quotations all round stand at a low level. English Winter Tares keep steady; but Königsberg Springs are still prohibitively dear. There is an inquiry for Rye. For Bird-seeds the sale is slow at previous currencies. The market for Mustard, Rape, and Linseed keeps strong. There is rather more doing in Boiling Peas and Haricot Beans. Scarlet Runners being very scarce are advancing in price; but Canadian Wonders, although also in short supply, are still obtainable at tempting figures. Windsor and Long-pod Beans are likewise now exceedingly cheap.

FRUIT AND VEGETABLES.

GLASGOW: February 9.—The following are the averages of the prices at this market during the past week:—Apples, 4d. to 8d. per lb.; Grapes, home, 2s. to 3s. do.; do., foreign, 4d. to 6d. do.; Vegetables: Cabbages, Scotch, 6d. per dozen; do., late, 1s. to 1s. 2d. do.; Parsnips, 4s. to 4s. 6d. per cwt.; herbs, assorted, 1d. to 2d. per bunch; Leeks, 1s. 6d. to 3s. 6d. per dozen bunches; Mint, 6d. per bunch; Onions, Dutch, 3s. 6d. per bag; ditto, Portugal, 8s. per case; Parsley, 1s. to 1s. 6d. per stone; Potatoes, best, 8d. to 9d. per stone; Carrots, 2s. 6d. to 3s. 6d. per bag; Artichokes, 3s. 6d. per sieve; Cucumbers, 9s. to 10s. per dozen; Lettuce, round, 1s. 3d. per dozen; Horseradish, 1s. 6d. to 2s. per bundle; Mushrooms, 1s. to 1s. 2d. per lb.; Beetroot, 6d. to 7d. per bunch; Brussels Sprouts, 1s. 6d. per stone; Spinach, 4s. do.; Rhubarb, 12s. to 14s. per cwt.; Turnips, Swedes, 1s. to 1s. 2d. per bag; do., Scotch, 2s. 6d. to 3s. per dozen bunches; Celery, Scotch, 9d. to 2s. per bundle; do., English, 2s. do.; Cabbage, Red, 1s. 6d. to 2s. per dozen; Savoy, 1s. 4d. to 1s. 6d. per doz.; late Cabbage, 9d. do.

LIVERPOOL: February 9.—Average of the prices at under noted markets:—St. John's: Potatoes, 1s. 2d. to 1s. 4d. per peck; Cucumbers, 1s. each; Grapes, English, 3s. to 4s. per lb.; do., foreign, 6d. to 8d. do.; Pine-apples, English, 4s. to 8s. each; Mushrooms, 1s. 3d. per lb. North Hay: Potatoes, per cwt.; Giants, 4s. 4d. to 4s. 9d.; Main

Crop, 5s. to 5s. 6d.; Bruce, 4s. 9d. to 5s. 3d.; Turnips, 6d. to 8d. per doz. bunches; Onions, English, 5s. 6d. to 6s. cwt.; do., foreign, 4s. 9d. to 5s. 3d. do.; Parsley, 4d. to 6d. per dozen bunches; Cauliflowers, 1s. 3d. to 2s. 6d. per dozen; Cabbages, 4d. to 8d. do.; Celery, 6d. to 1s. do.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending February 5, and for the corresponding period of 1897, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1897.	1898.	Differences.
Wheat	s. d. 30 7	s. d. 34 10	+ 4 3
Barley	s. d. 24 10	s. d. 28 0	+ 3 2
Oats	s. d. 16 7	s. d. 17 6	+ 0 11

NOTICES TO CORRESPONDENTS.

CARNATIONS: *E. N.* Carnation spot, *Uredo dianthi*. Cut off and burn all the affected leaves. Wash the plants with sulphide of potassium, 1 oz. to a gal. of water.

HANGING AND CREEPING PLANTS, HARDY: *J. F. A.* Lithospermum prostratum, Polygonum volubile, Vinca major and V. minor, Thymus lanuginosus, Aubrietia deltoidea, and other varieties; Phlox procumbens, P. reptans, P. subulata, P. Nelsoni, &c.; Ajuga reptans variegata, Helianthemum—Rock rose in variety, Iberis in variety, Lysimachia Nummularia, Viola cornuta, and others.

HYACINTHS WITH ABORTIVE FLOWER-SHAFTS: *Constant Reader*. It has probably arisen from the bulbs having been brought into the living-room before sufficient roots were formed. The length of time (two months) may not have been sufficient, and leaf-growth has been much forwarded by the heat of the room, at the expense of the flower-scape.

INSECTS: *Neve Bus*. The grub that bored the hole in the arm of the Weeping Ash is that of the Wood Leopard Moth, *Zeuzera aesculi*. The moth lays its eggs in crevices of the bark during July. The caterpillars feed at first on the bark, and soon make their way into the live wood, where they bore galleries rather wider than themselves. The grubs feed during the winter and up to June, and their presence is indicated by a little heap of what looks like rough sawdust just below a small hole in the stem or branch. If the grub can be killed by pushing into the hole a piece of wire before it has penetrated far, and not much injury is done, the tree may recover. Other methods of killing these grubs will suggest themselves. When full grown, the grub spins a web, and become an ochreous-coloured chrysalis. The other grub sent is the larva of the Cockchafer, or May bug—*Melolontha vulgaris*—in its second year. The grubs remain three years in the earth, and only change to pupae in the last year. In the grub state, if present in large numbers, they are very destructive to the roots of grasses, &c.

MARKET VARIETIES OF GOOSEBERRIES, CURRANTS, AND OTHER SMALL FRUITS: *M. Harris*. You should purchase *Fruit Farming for Profit*, 3rd Edition, by G. Bunyard, and published by F. Bunyard, 29, Week Street, Maidstone.

NAMES OF FRUITS: *T. Percival*. Knight's Monarch. The tree requires the old soil to be removed to the depth of a foot, and a thick layer of decayed bullock-stall-manure (not cow's, there being but little goodness in that) put over the roots for a distance of 6 feet all round the stem; and beyond that distance take out a trench 2 feet wide and deep, and fill it with new loam three-quarters, lime-rubble one eighth, and stable-dung one-eighth, all mixed well together. Prune the head a little, removing interlacing branches and weak useless shoots growing in the middle of it. Do not prune the tips of branches or shorten the long fruit-spurs—Knight's Monarch resembling Jargonelle, Chaumontelle, and Marie Louise in bearing fruit on these; and as the tree is a standard, it will rather improve its appearance by leaving these untouched with the knife. With this kind of treatment your tree will bear finer and better eating fruit.—*Quintin Read*. Apple, Annie Elizabeth, Dumelow's Seedling.—*G. Ambrose*. Apple, Norfolk Beefing.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*R. K.* Acacia dealbata. The plant may be propagated by seeds or by cuttings. For the latter purpose select half-ripened shoots during summer, and insert them in sandy peat in pots, which should be covered with a bell glass. A place in the greenhouse out of the reach of direct sunshine suits the cuttings. You may easily procure seeds from the trade.—*Smith*. Garrya elliptica, male flowers.—*F. P.* Epidendrum tovarense.—*R. and H.* The plant called Asparagus plumosa in gardens varies very much from seeds, and yours may all be seedling variations of that plant.—*G. B. Chadwell*. The plant is known in gardens as Anthurium lineare variegatum. It makes an excellent basket-plant; is good for growing in a dwelling-house or the conservatory.—*G. M.*, Bath. Send when in flower, or at least give some particulars as to the size, form and colour of the flowers.—*No Name*. Broken cardboard box. 1. Adiantum cuneatum grandiceps. 2. Hippeastrum alicium (Amaryllis).—*J. F. Birkdale*. Lælia albida.—*Amateur*. The large Orchid is Cattleya Trianaei; the smaller, Cymbidium pendulum. The scarlet spathe is that of Anthurium Scherzerianum var.

REGULATION OF TEMPERATURE IN ORCHID-HOUSES: *Odontoglot*. We should imagine that our Calendar contributor meant either a minimum thermometer laid on the grass, for taking the night range of temperature, and that in the screen for the day.

ROSE STOCKS: *Bassel*. The soil is infested with weevil-grubs, which are most destructive. We cannot recommend any other plan than getting fresh soil. Or you might bake the soil, or spread a thin layer on the ground and soak it with boiling water, but we are afraid you could not do this on a large scale.

SEDUM CARNEUM VARIEGATUM: *G. B., Junior*. The true name is S. sarmentosum var., and is quite hardy, excepting perhaps in very wet soils and situations. It makes a nice trailer for a window-box, small vase, or on rock-work, being very suitable for placing in hot, dry places. It may be planted out at any time during the spring, taking the precaution to prepare it, if it has been grown in a house, by affording full ventilation for a few weeks. It likes a gravelly, free soil.

SNAKES IN IMPORTED ORCHIDS: *W. M.* Why not send the snakes alive to the Zoological Society, instead of killing them? They may be rare and harmless species which the Society would be glad to possess.

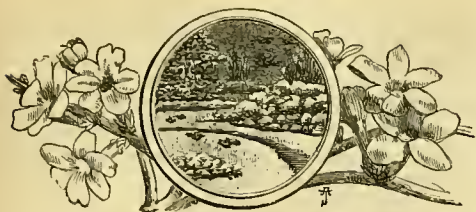
TEN-YEAR-OLD VINES: *M. C. B.* The most suitable time to transplant the Vines will be next September, at which time the growth for the year is complete and mature, but the leaves have not fallen. The roots should be excavated with care, and protected from the drying influence of the air by swaddling them in bundles with damp litter, mats, &c. Then, having prepared a new border, and cut away decayed and badly-wounded parts of the roots, proceed to replant them at various depths from 5 inches to 12 inches deep. The viney should have been shaded with mats or canvas from the beginning of the job, and should so remain for ten to fourteen days after its completion, the Vines being moistened once or twice daily, and the viney kept somewhat close. After that lapse of time more air should be afforded, and the shading removed, excepting on very bright days, when it should be replaced during the warmest hours.

VINES: *H. R. H.* The result of some sort of check to growth, either at the roots or top, arising, perhaps, from loss of heat in the fermenting materials on the border, or from the shoots being exposed to cold draughts, or the cold stratum of air found close to the roof-glass at night.

VIOLET MRS. J. J. ASTOR: *Hood Gardens, Totnes*. See p. 71, *Gardeners' Chronicle*, January 29.

WOODLICE IN MUSHROOM-HOUSE: *C. D.* Trap them under slates or boards raised about $\frac{1}{4}$ -inch from the floor; pour boiling water round the Mushroom-bed, the insects hiding when light is brought to bear on them, in the crevice usually found between the sides of the bed and the walls, &c. Do not employ any hay or straw as covering for the bed.

COMMUNICATIONS RECEIVED.—*F. W. B.*—*C. W. D.* (many thanks).—*G. H. Mac.*—*H. G. C.*—*W. T.*—*C. B. W.*—*C. J.*—*H. C. W.*—*H. W. W.*—*W. S.*—*Devon.*—*J. L.*—*W. J. B.*—*H. R. W.*—*Scutgard.*—*J. O'B.*—*H. R. R.*—*D. C.*—*Ignoramus.*—*R. O. Backhouse*.



THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 19, 1898.

THE TABLE-GRAPES INDUSTRY IN FRANCE.

IT is estimated that there are 19 million acres of land in the world under vineyards—of this total, France claims nearly one-third; she had more before the phylloxera appeared, but replanting is rapidly making good the loss, as the cultivation of the Grape, whether for table consumption or wine-making, is very remunerative, as evidenced by the well-being and contentment of the growers. Besides, the culture of Grapes affords constant and agreeable employment nearly throughout the year. The culture of the Vine, M. A. de Candolle asserts, can be traced to the Bronze Age, as seeds have been found in the lake dwellings of Castione, in Italy, and leaves of the Vine have been discovered in the soft stone subsoil at Montpellier, which coincides with the pre-historic period of our globe. What about the origin of the juice—of wine itself? Pictet attributes it to the Semites and Aryans, and as these peoples migrated, they made known the process in the countries where they settled down, notably in Egypt, India, and Europe. Thus the Vine and wine possess very ancient title-deeds.

In general, table Grapes in France are grown in the open air, and by ingenious processes of conservation can be kept fresh up to June. Of course, there are hothouse Grapes grown, and of late the artificial culture under glass is spreading in Northern France, as at Roubaix, Lille, &c., where coal is relatively cheap, to displace the foreign markets with Belgian forced productions. These vinery Grapes can never have any important sale in France; their price, 2s. to 3s. per lb., being only for persons with fat purses, and the owners of the latter being mostly *gourmets*, prefer the superior delicacy, flavour, and "bouquet" of the natural well-preserved Chasselas Grapes. From the closing days of June till the middle of July, France has no open-air grown Grapes; but then she has an ample supply of small fruits. Algeria sends the first consignments of fresh Grapes to the Paris central markets; they have not the fineness and delicacy of the Grapes of continental France, but they are rapidly becoming ameliorated by greater care in cultivation. Next to arrive are the Grapes from Vaucluse, the Eastern Pyrenees, Hérault, &c., and, in due course, the pleasant-eating Chasselas of Montauban and Toulouse. The Chasselas Grapes have a thin skin, crisp pulp, sugary melting like a bonbon, and of delicious flavour. It is not a wine Grape, because it does not yield much juice, and does not possess good keeping qualities; but it is a sure-cropping, profitable, table Grape, that thrives on strong lands, and in a humid climate. The several varieties of Chasselas are not distinctly marked, and their differences are due more to soil and culture than

to other causes. The Chasselas of Fontainebleau may be regarded as the parent of that celebrated variety, now so widely spread, because plants are raised in nurseries for sale.

Originally it came from the village of Chasselas, near Maçon, and was planted in the royal park of Fontainebleau during the reign of Henri IV. or Louis XIII. It was shoots of this royal Vine that Marmieux, in 1730, planted, and made famous, at Thomery, a picturesque village, 3 miles from Fontainebleau, and sheltered on the north and west by the wood-clad hills.

In autumn, no more beautiful walk exists than to descend from the forest-heights of Fontainebleau into the lowlands, for miles around the country only series of walls covered with Vines, espaliers, and *contre-espaliers*, are to be seen. This is the head-centre of the culture of the Thomery table-Grapes, that only became a world-celebrated industry since 1840. Although a few cultivators raise Grapes under glass, the normal culture is carried on in the open air. Perhaps the secret of the monopoly resides in the conservation of the fruit—as fresh and velvety as when first gathered on the Vine—till May or June, when they sell at from 5s. to 6s. per pound. The walls in the gardens are 33 feet apart, and 11 feet high; supports are fixed to allow of a sloping shelter of straw, wood, tarpaulin, or better still glass, to protect the Vine-espaliers from injury by frost and rain. In the spaces between the walls are the *contre-espaliers* with galvanised-wire for the branches, the latter equally protected from the severity of the weather by hoods of straw matting. All the Vine branches are, as a rule, trained mostly horizontally and vertically. Following the mode of pruning adopted, the Vines are planted 16 to 30 inches apart, and only one bunch of Grapes per bearing branch is desired. The Thomery Grapes owe their famous reputation to the *cisellement*, or thinning and *effeuillage*, or removal of foliage practised. When the Grapes are about the size of a Pea, the bunches are examined, and every berry tending to obstruct the development of its neighbour, or presenting the appearance of an abortion, is carefully removed by a sharp and fine-pointed pair of scissors—that operation is called *cisellement*.

The removal of the leaves, when they interfere with the development of the bunch, is *effeuillage*; the second removal of the leaf will not take place till the fruit be matured, and is intended to expose the berries to the sun, in order to acquire the golden hue so much desired by *connoisseurs*.

In consequence of the extension of hothouse raising of Grapes in the North of France, the large "Frankenthal" violet-black Grape is not so much cultivated at Thomery. Experiments continue to be successfully made with hybridisation, and some other practices, to obtain a golden Chasselas with berries as large as the Frankenthal. The secondary quality of Grapes grown at Thomery, those raised on the *contre-espaliers*, the insufficiently, or too-ripe, or the meagre-looking bunches, are packed in special small baskets, and sent to the Paris central markets, where they nevertheless obtain a top price. But the best Grapes, that is to say, all the prime crop, and those destined to be conserved till the spring, are cut with a pair of scissors or a pruning-knife, and the bunches handled with care, so as to retain their bloom. These bunches are left uncut as long as sunny days will permit, thus allowing much of the water in the berries to evaporate, and in that way augment

the quantity of sugar retained in the berries, of which as much as 30 per cent. has been found.

The Romans, in order to preserve Grapes from one year to another, inserted a part of the branch with the bunch attached in a glass-globe, and covered the mouth with pitch. At Thomery, growers have special halls or rooms maintained at a temperature of 39° to 42° Fahr., where, on racks, wide-mouthed bottles filled with water are ranged, slanting-wise, and into which the piece of the branch, nearly 3 inches long, that has the bunch attached, is inserted, and to be kept constantly wet. This will ensure the duration of the plumpness and the original freshness of the berries. In the bottom of the bottles should be placed a few pieces of charcoal to prevent the decomposition of the water. The Grapes to be thus preserved should always be cut during dry weather, with 3 inches of the branch attached to the bunch; the storeage-room ought to have its openings facing the north, and to be maintained hermetically closed, so as to guard against atmospheric variations. It is essential to inspect the fruit frequently, and remove all that is affected with must; place in a corner some lumps of quick-limestone or chloride of calcium to absorb humidity, when the hygrometer exceeds 72 degrees, and if a musty smell exists, burn a few sulphured wicks. Grapes that are not expected to preserve their pristine greenness are stored by the small growers at Thomery in the central room, on the first story of their dwelling house; the bunches are placed on open-work shelves, so as not to touch, and are covered over with very dry Rye-straw or Fern. The room must have facilities for ventilation, and the usual uniform temperature and hygrometric condition of the atmosphere secured. It has been found that Grapes obtained from Vines not less than ten years old, keep better than such as are produced by younger Vines, and that the products of argilocalcareous soils preserve better than those from silicious soils.

In Southern Russia, fresh Grapes are preserved in a well-closed cask with the finest cork dust, so that each berry be well embedded in the powder. In the South of France, where the Grapes are excellent and abundant, all attempts made to preserve them throughout winter have failed—at Montpellier especially, owing to the sudden transitions of temperature.

The packing of the Grapes for exportation is executed by women specially trained to the work; small deal boxes are lined inside with the whitest of paper, the border of the latter being of a lace pattern. The bunches of Grapes are then laid, stalk upwards, so as not to touch each other, with paper separations of an undulatory nature; a sheet of paper covers all, and the lid is closed down.

Hérault is the department which excels for ordinary vineyard table Grapes, and these are forwarded to Paris, from August to October, in circular wicker baskets containing 25 lb. of fruit. It boasts to have Chasselas as good as those of Thomery; which is not quite exact. An acre produces two tons of Grapes, which sell on the spot at a fraction less than one penny per lb., the transport to Paris, duties, storage, commission, &c., amount to 2d. per lb., so the retailer pays 3d. wholesale price, and sells at 5d. to 7d. per lb. The railway charge covers the return of the "empties." The "Grape-trains" leave Montpellier at midnight, arriving at Paris in 23 hours; the Grapes are delivered to the commission agent, and auctioned off six hours later. *Edward Connor.*

NEW OR NOTEWORTHY PLANTS.

CORIARIA TERMINALIS, Hemsl.*

IN the sixth number of the *Mittheilungen der Deutschen dendrologischen Gesellschaft*, just issued, there is a coloured figure of a plant named *Coriaria nepalensis*, but which is undoubtedly my *C. terminalis*, published in the work cited below, in 1892. It is so very distinct from *C. nepalensis*, that when one has fairly good specimens under observation there can be no question, yet herbarium specimens of *C. terminalis* have long been included under *C. nepalensis*. It was from excellent specimens collected by Mr. Pratt in West Szechuen, China, on the Tibetan frontier, at 9,000 to 13,500 feet, that I first discovered that it was an undescribed species. Further research led to the discovery of Indian specimens of the same plant in the Kew Herbarium, collected in Sikkim by Sir Joseph Hooker, nearly fifty years ago, at elevations of 9,000 to 11,500 feet. These specimens are marked "var. *sikkimensis*," though they are not distinguished from *nepalensis* in the *Flora of British India*.

The plant figured in the *Mittheilungen* was from the garden of Baron von St. Paul, at Fischbach, in the Riesengebirge; but its origin is not given. In his communication respecting it, Baron von St. Paul says he "could hardly expect that this charming shrub would prove hardy in his locality, though Mr. Max Leichtlin found it perfectly so in Baden-Baden."

It is described as always having terminal racemes of flowers, and in this character it differs from all other known species. From *C. nepalensis* it also differs in the leaves, being from 5 to 9 (usually 7-) nerved, as well as being a much less woody plant. Indeed, judging from the herbarium specimens, I came to the conclusion that the stems were of annual duration, and flowered only once; in other words, that it was a herbaceous perennial. Though Baron von St. Paul designates it a "*strauß*," it might from the figure in the *Mittheilungen* be either a dwarf shrub or a herb, not a shrub 8 to 16 feet high, as true *C. nepalensis* is. It certainly has the appearance of being a very ornamental plant, in the form of a dense bush, with crowded dark-green leaves, and terminal pendulous racemes of dark-yellow and chocolate flowers. My description in the place cited may be useful:—"Herba perennis (ut videtur), caulibus erectis, 2-3-pedalibus pauciramosis crassiusculis. Folia opposita vel subopposita, sessilia vel brevissima, petiolata, fere membranacea, late ovata vel interdum fere orbiculata, vel in ramulis lateralibus oblongo-lanceolata, 1-3 poll. longa, abrupte breviterque acuminata, basi cordata et semi-amplexicaulia vel retundata, 5-9-nervia sed sæpiissime 7-nervia, subtus præcipue secus nervos asperula. Flores polygami, in racemos solitarios terminales, 3-7 poll. longos dispositi, pedicellis gracilibus puberulis vel asperulis, circiter semipollicaribus demum patentibus. Sepala ovata vel lanceolata, obtusa vel acuta. Petala per anthesin parva, quam sepala multo minora, post anthesin accrescentia, incrassata, intus carinata. Carpella glabra, carinata, sæpiissime bicostata."

There is one objection to planting this and other species of the genus: the attractive fruit is decidedly poisonous. The fruit, I may add, consists largely of the petals, which become fleshy, and enclose the dry carpels. Besides *C. nepalensis*, which extends eastward to Japan (*C. japonica*) and the Philippine Islands, there is one native of the south of Europe, and three of New Zealand, two of which have annual stems, and the third, a tall climber, is also a native of the Andes, from Chili to Mexico. It is figured in the *Botanical Magazine*, pl. 2470. *W. Botting Hemsley*.

DIDIERA MIRABILIS (FIG. 42).

Several years ago, the late Professor Baillon described in the *Bulletin of the Linnean Society of Paris* (1880, p. 258), a remarkable plant from Madagascar, and which was so anomalous that he thought it might eventually form the type of a new genus. The stems are something like those of the

succulent *Euphorbias*, and have long spines and leaves, and pendulous flowers in tufts. The perianth consists of three pairs of alternate rose-coloured leaflets. There are, according to the figure, eight hypogynous stamens, a superior ovary with one perfect, and, as it appears, two imperfect compartments. The solitary ovule is ascending anatropal. The ovary terminates in a long style, expanding at the top into a broad wavy three-lobed stigma.

In the atlas to the *Histoire Naturelle et Politique de Madagascar*, published by M. Grandidier, are figured without description, two species, *D. madagascariensis*, with a thick fleshy conoidal stem with spines and

house, and one out of doors protected by a bell-glass; the first, says M. Guihéneuf, did the worst. In autumn, after the fall of the leaf, they went to rest and were wintered in an intermediate house, and the soil kept just moist. In spring they were repotted and started into growth again. Now they are doing perfectly well, and have attained a height of about 8 inches. The soil used is sandy peat. In a young state, when at rest, they have much the appearance of a small *Melocactus*, but lose that habit as they get older.

The second portion of the seed was sown on pure sand kept perfectly dry in the same stove as the

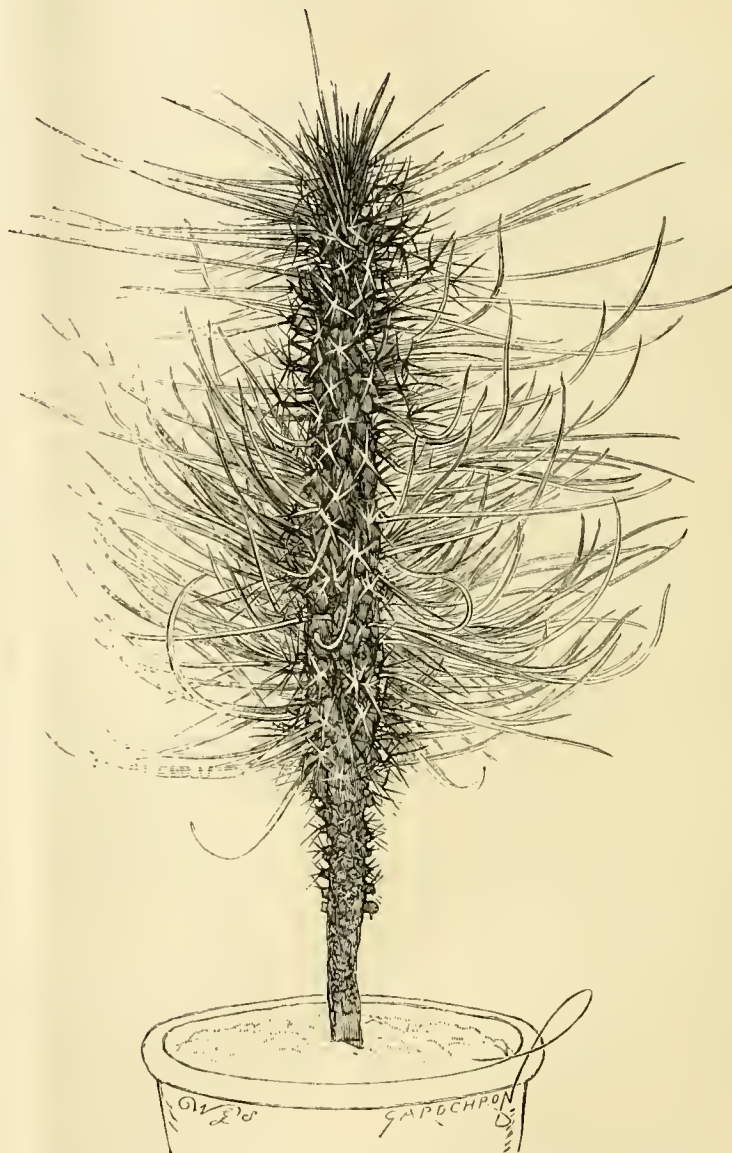


FIG. 42.—DIDIERA MIRABILIS: SEEDLING PLANT ABOUT 8 INCHES HIGH.

tufts of linear-oblong leaves on the one side, and tufts of pendulous flowers on the other. The second species, *D. mirabilis*, is a weird uncanny-looking thing with spreading serpentine branches, thickly covered with spines. Through the kindness of M. Guihéneuf, 20, Rue Albany, Paris, we are enabled to give a representation (fig. 42) of one of the six seedling plants in Paris. M. Guihéneuf tells us that the plant grows to a height of several metres on dry rocky soil. Three years ago a branch was sent to Paris in a wooden box. The flowers opened during the journey, and some of the seeds arrived at maturity. These were sown immediately in pure moist sand, and germinated in forty-eight hours, and the seedlings when strong enough were potted in thumb-pots; some were placed in a stove, some in a temperate

others. None of these germinated, but after six months the seeds were moistened and once more germinated in twenty-four hours. The plant requires a very sandy soil, moderate heat, plenty of air, moderate waterings, and a perfect rest in winter. Everything about the plant, its conformation, structure, and rapid germination in the presence of moisture, denotes the nature of its habitat, and suggests the treatment to be adopted here.

It is one of the most singular plants introduced of late years, and the botanists at present do not know where to place the new-comer. It is more like some of the odd-looking plants of which the fossil remains only are known to us, and when we get it in cultivation not only its flower and seed but its anatomical conformation will require close scrutiny.

* Hooker's *Icones Plantarum*, xxiii., t. 2220.

THE GENUS ASPHODELINE.

THIS week we publish a series of illustrations from photographs sent by Mr. Siehe, of Mersina (Asia Minor). The species have been identified by Dr. Udo Dammer, of the Berlin Botanic Garden. One view (fig. 44) shows a group of these plants as growing in their native country, Cilicia and Cappadocia. As the

those of *A. Balansæ*, inflorescence irregular, fruit much constricted in the middle (fig. 45). The last two species attain a height of 5 feet, and the inflorescence is sometimes ramose.

4. *A. Dammeriana*, Siehe, sp. nov. Stem smooth, without scales; height, 2 to 3 feet; inflorescence almost always branched, flowers white, fruit spherical.

5. *A. imperialis*, Siehe, sp. nov. A fine plant,

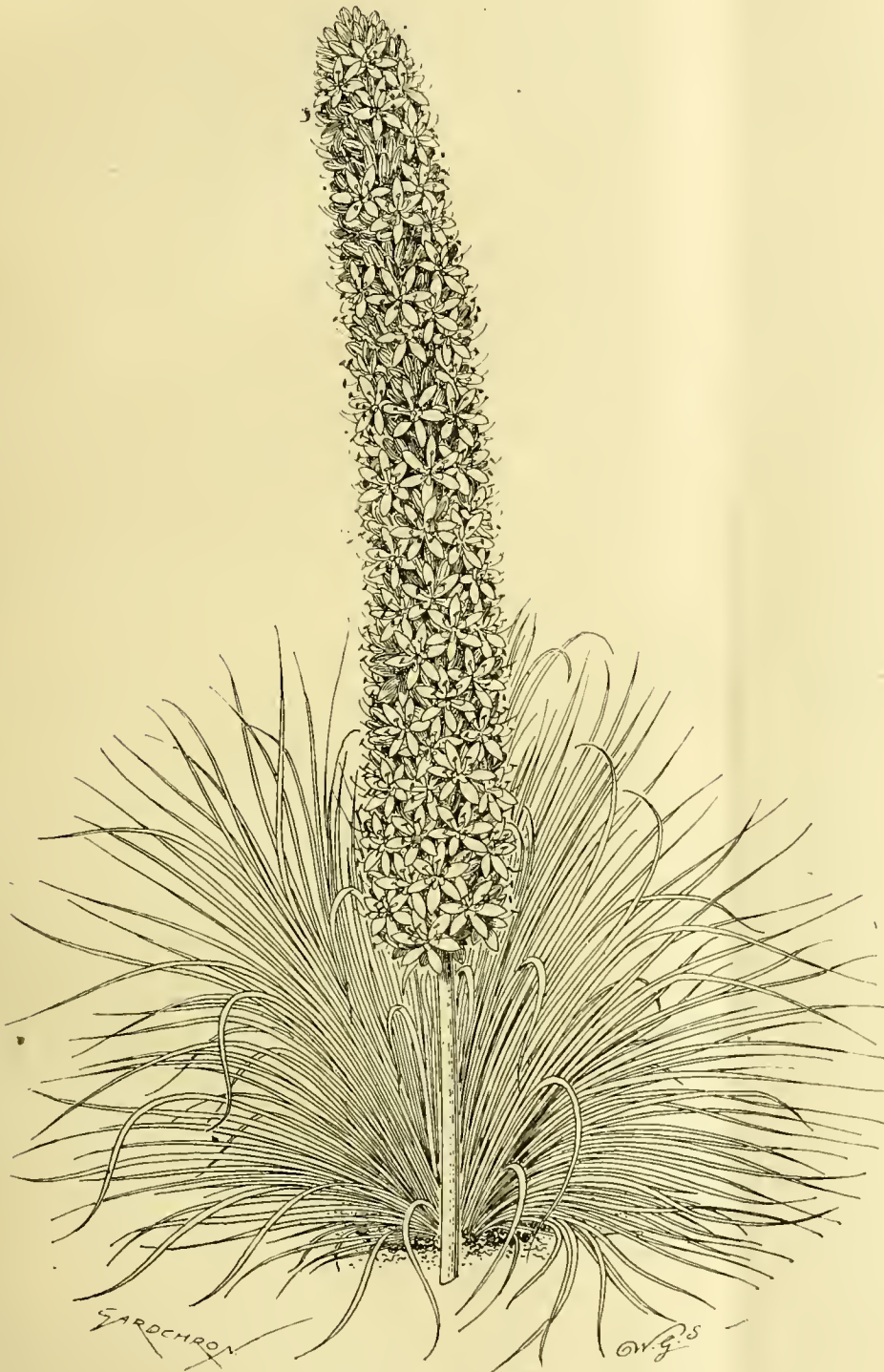


FIG. 43 — ASPHODELINE BALANSÆ

plants are quite hardy it will be seen that they are likely to form very fine decorative plants. "The species specially alluded to are:—

1. *A. brevicaulis*, yellow-flowered species.

2. *A. Balansæ*, with a stem destitute of scales, white flowers, oblong fruit, somewhat constricted in the middle. This fine plant has the habit of a Dasy-lirion, the tuft of leaves at the base has a diameter of 3 feet (fig. 43).

3. *A. isthmocarpa* has flowers rather larger than

attaining a height of 7 feet; inflorescence apparently always unbranched; fruits spherical.

6. *A. taurica*, an alpine species, with leaves up to the base of the inflorescence; fruits oval. A very interesting species, from its snow-white bracts and white flowers; see *Gardeners' Chronicle*, March 13, 1897, fig. 52.

7. *A. Basilii*, Siehe, sp. nov. A species with ovate-oblong fruits, found near Casarea, on Mount St. Basil, whence the name. *U. D.*"

ALPINE GARDEN.

POLYGALA CHAMÆBUXUS.

ALTHOUGH not a rare plant, the Box-leaved Milk-wort is yet absent from many alpine gardens where it could be grown with advantage. Its evergreen habit, added to its pretty yellow and white flowers cannot fail to please those who see it for the first time, nor to give lasting satisfaction to its grower. Introduced about 240 years ago, from the Alps of Austria and Switzerland, it has but slowly acquired its present position of favour among alpine flowers, prized by those who know them well.

Polygala Chamæbuxus is a choice little plant which rarely grows more than a foot in height, and is more frequently seen much dwarfed. It is of shrubby, evergreen growth, and the branches are clothed with small, light green leaves, resembling those of the common Box. The flowers greatly resemble those of a papilionaceous flower, and, as has already been mentioned, are white and yellow in colour, the yellow changing to buff with age. There is also a very beautiful variety known as *P. Chamæbuxus atropurpurea* or *purpurea*. This has the calyx and wings of a fine purple colour. This variety is said by M. H. Correvon, in *Le Flore Colorée de Poche*, to occur in the granite districts, and more especially in the Southern Tyrol. In the *Botanic Garden*, where the type is figured, Maund tells us that several varieties "are spoken of, some with red or purple flowers, others with red and yellow." *P. Chamæbuxus* is not difficult to cultivate, and may be grown well in a peaty soil, or one composed of peat and loam. I have seen it occasionally doing well in a clayey soil. It is increased by division or by cuttings; and the means for the former are easily procured, as the plant increases naturally by sending out creeping roots. Cuttings may be taken off with a heel of the old wood. The plant comes into flower in April or May, and lasts in bloom for a long time. The writer prefers to take cuttings in spring, and to divide the plant either before it comes into flower, or in September. It may be grown in the border as well as in the rock-garden, and will give satisfaction in either.

IRIS CRISTATA.

The Irises are amongst the most admired of our border flowers, and yield us also a few rock-garden plants of much beauty. Among these none are more interesting or more beautiful than *I. cristata*, from the south-east of the United States, occurring on the mountains of Kentucky, Virginia, and Carolina. It appears to have been introduced about 1756, and Mr. J. G. Baker, in his *Handbook of Irideæ*, says, "there is a specimen at South Kensington, dried, from the garden of Collinson in 1766." It is *I. odorata* of Persoon, and *Neubeckia cristata* of Alsfield; while *I. cristata* of Miquel is *I. tectorum*, a Chinese and Japanese species. *I. cristata* belongs to the sub-genus *Evansia*; it is an exquisite little plant, possessing flowers which are large in proportion to its height. The flowers are of a beautiful pale lilac with yellow throat, and a pretty yellow crest; they appear in April or May, but in the north generally in the latter month. Two flowers are usually produced on each stem. The leaves are a pretty light green, and not so long as to interfere with the effect of the flowers. The normal height of *I. cristata* is given as 6 inches, but it is frequently considerably taller if in a favourable situation.

There appears to be a current impression that this little fragile-looking Iris is not quite hardy, and it is undeniable that the plants are frequently lost the first year or so after being planted. I do not think this is due to any tenderness, but simply to the Iris not having had time to take root properly before unsuitable weather-conditions weaken or destroy it. It prefers to have its root-stock above the surface of the soil, with only its fibrous roots in the ground. In planting, this is frequently disregarded, and the rhizomatous root-stocks are covered, with the result that decay sets in. It is highly desirable that this Iris should be planted either in spring or in July or August. A light and fairly dry sandy peat soil is generally recommended for it, but it does not thrive

so well if not properly supplied with moisture in summer. Some continental growers, indeed, go so far as to recommend growing the crested Iris as a bog plant, with moss placed over the root-stocks. It does well planted on a flat terrace in the rock-garden, where it soon spreads and, when happy, forms a thick, dense tuft of leaves, and gemmed at the flowering time with many exquisite blooms. It is also used in some gardens with much success as a border plant or as an edging. In an Irish nursery there is a long, broad margin of Iris cristata growing in fairly heavy soil, and delighting everyone with its vigour and beauty. Did it do as well everywhere, no one could fail to welcome it in the garden.

ANDROSACE LANUGINOSA.

This Androsace is one of the best of our rock plants, and one which is becoming more appreciated as it is seen that its requirements are not very exacting upon its cultivator. It comes from the Himalayas, whence we have a considerable number of plants reputedly difficult to grow in our climate. The silkiness or wooliness of its foliage would point to the desirability of protecting *A. lanuginosa* from wintry rains, but, after some years' trial without such shelter, I have come to the conclusion that it is not absolutely essential, even if it is beneficial. For some years a covering with a sheet of glass was adopted, but as the plants increased in size, they became too large to be thus shielded, and they are now left uncovered. In consequence, at the dawn of spring, they look rather dejected and unhappy; but a week or two of seasonable weather will soon bring them round again.

Androsace lanuginosa is a choice alpine flower, with long trailing shoots covered with leaves of a beautiful silvered-silky appearance, caused by the silk-like hairs which cover them. It looks at its best when it depends from the face of a rock. In such a position its silvery leaves look pretty, and when in flower, the appearance of the whole is very pleasing. The beautiful delicate rose flowers with yellow eyes are produced in umbels. A good-sized plant will flower very freely, and the bloom will be continued from June till October. Occasionally in mild seasons stray flowers will appear later still.

An open and sunny situation is the one it prefers, and the soil in which it thrives best is one composed of sandy-peat. Although of trailing habit, it does not look flat on the surface, as it is rather inclined, if on the level, to form a little shapely mound, and those who do not find it convenient to give it a pendent position, will not regret growing it on a level terrace, provided that the latter is large enough to allow the *Androsace* to extend. Its height, if grown in this way, is from 6 to 9 inches. It was introduced about 1842, and a variety named *A. l. Leichtlini*, with paler flowers, and a deep crimson eye, has since been brought into cultivation. Either may be propagated by cuttings or layers. *S. Arnott, Carsethorn, by Dumfries, N.B.*

ORCHID NOTES AND GLEANINGS.

SPIRANTHES COLORATA VAR. MACULATA.

From Mr. Otto Fröbel, of Zurich, comes a fine inflorescence and some foliage of this handsome South American terrestrial Orchid, of which he justly expresses great admiration in the letter which accompanied it. Its foliage is of a bright green hue, marbled and spotted with silvery-white; and from the centre of the plant rises the erect inflorescence about 1 foot in height, the upper half of which bears a head of pretty coral-red and white flowers, each furnished at the base with a coral-red bract. The green variety, known formerly as *Neottia* and *Stenorhynchus speciosus*, is an old friend in gardens; and the spotted-leafed one has often appeared, and an account of the difference in its foliage from the type had been variously named, until Mr. N. E. Brown identified it as above, and recorded it in the *Gardeners' Chronicle*, 1883, i., p. 210. It makes a useful decorative plant, lasting in beauty in a healthy room for upwards of six weeks.

DENDROBIUM NOBILE VARIETIES.

A fine set of grand varieties of *Dendrobium nobile*, some of them equal in size and breadth of petal, is forwarded by Messrs. James McBean & Sons, florists Cooksbridge, Sussex, who have made for themselves a good name as cultivators of Orchids useful for market purposes. One handsome kind has white flowers slightly tipped with purple on the sepals and petals. The lip has a maroon blotch at the base, primrose-coloured front, and purple tip. The opposite of it is coloured all over, except the white zone on the front of the lip, with a rich crimson purple hue; and between these two extremes are many handsome variations. Peculiarities in all the forms are the unusual length of the flower-stalks and the extraordinary size of the lips. *J. O'B.*

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Barford, Dorking.

Odontoglossum crispum.—Numerous importations of this species taking place at the present season, some hints as to treatment may be acceptable to those about to commence their cultivation. In removing them from the stems and branches of trees, the collectors will have damaged the roots very considerably, and the plants will have been further weakened by being deprived of moisture and light on the journey, and the vicissitudes to which they must necessarily be subjected; the leafless pseudo-bulbs, therefore, are wasted and shrivelled by the time they reach the gardener. To attempt to make these pseudo-bulbs at once plump, or to excite growth after losing a large portion of their vital force, would usually end in failure. The better method on receiving imported plants is to prepare a stage in the cool-house, and if it consists of quartering, overlay it with boards or slates, and a thin layer of sphagnum-moss spread over these. Then having cut away all decayed parts, and cleansed the plants from dirt and insects, lay the plants on the sphagnum apart from each other. At this season, owing to the moist air in the cool-house, there is no necessity to moisten them; for evaporation of the juices is at once arrested, and in due time the back pseudo-bulbs send up sap and enable the leading bulb to distend itself, and to push out a new growth, from which sooner or later roots will appear. When this stage is reached the plants should be potted; but instead of potting up the whole of them, select only those that have made the strongest start, and do not make up specimens by putting several pieces together, it being almost certain that the varieties will differ in their flowers, scarcely two being found exactly alike. Not unfrequently *O. Lindleyanum* and *O. gloriosum* are imported with *O. crispum*, which, if made up in the same pot, would have to be pulled to pieces later on, probably to the detriment of the plants. Each piece should be put into as small a pot as can conveniently be used, filling them almost to the rim with crocks, with but a thin layer of sphagnum-moss at the top, the base of the plant being kept just above the level of the rim, then a small quantity of peat and moss should be packed tightly around each plant, so as to keep it firmly in its place. Stand the plants in a damp corner of the house, and keep the atmosphere about them cool and moist; the object of doing this being to keep the plants fresh without having recourse to heavy applications of water during the first few weeks. As the roots push their way into the soil and among the crocks, the growths will increase in vigour, and water at the roots may be safely afforded, gradually at the first, but increasing in quantity as growth progresses. Exposure to strong sunshine will cause the loss of the young leaves, to avoid which careful shading is necessary. By the month of September, these imported pieces should have completed their first growth, and probably some of them will be starting to grow again, rendering repotting necessary. Imported *Odontoglossums* which start with vigour at the first sometimes flower the first season, and those who possess any of the plants will be desirous of seeing the flowers, but it is wiser to reduce the number to one or two on a spike. *O. crispum* is a plant very impatient of artificial heat at any season, and no more should be employed than is necessary to maintain the temperature at about 45°. From the present time it is probable that very little will be required, and in warm weather not any. Like most Orchids, they require ventilation whenever air can be admitted with safety, regulating the volume of it in accordance with

the outside temperature. Cold draughts should not be permitted to reach the plants, and on bright, cold days, when the outer air is below 40°, air should not be admitted with the object of keeping down the temperature, but blinds or shading should be used; but with an outside temperature of 45° and 50°, all the bottom ventilators may be opened wide, and when it is 50° out-of-doors air may be admitted gradually at the top as the warmth inside the house increases.

Miscellaneous Species.—The distinct looking *Odontoglossum Uro Skinneri* may be repotted, in ordinary Orchid compost. Pot the plant as advised for *Masdevallia tovarensis*, and grow it in a moist, shady part of the *Odontoglossum*-house. *O. bictonense*, and its variety *album*, will thrive under the same kind of treatment. *Odontoglossum nebulosum*, and its unspotted variety *candidulum*, are both growing freely. It succeeds well under the same cultural conditions as *O. crispum*. The same remarks apply to *Masdevallia racemosa* Crossii, a plant now rarely seen in bloom, but which has been in flower for several weeks past at Barford.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Heliotropes.—If a quantity of plants is necessary for bedding, the seed should be sown now in a warm house. Prick out the young plants when large enough, and grow them in considerable warmth for a time, repotting them as often as may be necessary. They may be hardened-off gradually during May. The usual method of propagation is by cuttings, which should be dibbled in sand or cocoa-nut-fibre, and kept in a warm house or hot-bed until rooted. Care is necessary in watering them, as the young plants are liable to damp off if afforded too much water at the root or atmospheric moisture. Large plants when trained pyramically are very suitable for use as centre plants in beds, or as isolated specimens plunged in the turf. In Devon and Cornwall planted against walls and buildings the *Heliotrope* flowers the greater part of the year.

Mathiola bicornis (the night-scented Stock) is an annual worthy of culture by reason of its scent alone. The plant grows about 1 foot in height, and has flowers very similar to those of the Virginian-stock, which upon the approach of evening fills the whole surrounding air with its aroma.

The Sub-tropical Garden.—The plants intended for this portion of the garden should be sown during the present month. Such plants constitute a happy relief from the characteristics of the usual summer-bedding. *Acacias*, possessing light and graceful foliage, have a fine effect when planted amongst the purple and crimson foliage of the *Amaranthus*; *Ricinus* (the Castor-oil plant), is of upright growth and magnificent foliage; *Daturas* (*Brugmansias*), with their large trumpet-shaped, deliciously fragrant flowers. Several of the species of *Eucalyptus*, but particularly *E. globulus*, are also useful for this style of gardening. Intermixed with these and similar plants should be planted Lilies that flower during summer and autumn, *Gladioli*, *Montbretias*, and *Hyacinthus candicans*. The beds should be composed of light sandy soil, and a liberal supply of well-rotted leaf-mould may be worked into them previous to planting. If a little peat can be added, the better will be the results.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Cucumbers.—Plants which have been in bearing throughout the winter will appear, as the days lengthen, to have taken a new lease of life, and will begin to grow anew with freedom. At this time the old, unproductive bines should be gradually removed, so as to give room for the new to extend. In order to assist the plants, they should be afforded a dressing, 1 inch in thickness, of light turfy loam three parts, and spent Mushroom-bed manure one part. Those plants that were set out in the beds early in January, if they have been subjected to the treatment advised, should be growing and gaining in strength, and their roots permeating the soil in every direction. When the roots show on the outside of the hill, place some rich mould 1 to 2 inches in thickness on the latter, and 3 or 4 inches around the sides. This additional soil should have been warmed previous to employing it. The bine of the plants should be induced by stopping and training to cover the lower part of the trellis first, in order to make the most of the space at command. Let the removal of the laterals from the main stem cease for a time, and at one joint beyond the point where the stem has

reached the trellis nip off the point, and then endeavour, by the suppression of weak growths, to throw the strength of the plant into three main shoots, which should when long enough be secured to the trellis, the side ones at a right angle to the central one, which will be allowed to extend onwards as the main shoot, and in course of time to develop other lateral shoots, and cover the entire space. Minor laterals may be stopped at the third leaf, reckoned from the point of issue. It is better to have some definite method of training the bine, than to let it wander at will over a trellis as some do. It is very necessary to avoid the crowding of the trellis with foliage at this season; and the removal of spent leaves and redundant shoots must be attended to frequently, and not left untouched for weeks, and then the plants denuded wholesale at one time. Do not exhaust the plants by excessive cropping, or leave mis-shapen fruits to develop. Those who grow their early plants in pits, and do not use a trellis, should employ Cucumber-glasses or boxes if they want straight fruits, although this is a matter of no consequence when the fruits are sliced or stewed. I can give no rule for affording water to the beds, as so much depends on the nature of the soil—its depth, the sort of bottom-heat supplied, and the kind of house or pit. The best guide in this matter is to have several test-sticks thrust into the bed to the depth of a foot, and these should be examined twice a week. The soil must be kept in a moderately moist condition, not, however, soddened with water at all times, or souring will occur, followed by an unhealthy state of the plants. As a considerable amount of fire-heat is necessary, there is always the danger of having red-spider and thrips attacking the leaves: and to check the ravages of these pests of the Cucumber, a humid air must be maintained at all times, and a gentle syringing of the foliage practised once or twice daily, according to the state of the weather. Plants raised from seed sown early in January will now be large enough for planting in the beds, which may be done according to the directions given at the time of sowing.

Melons sown at the same time will be fit for planting out. Some gardeners construct their Melon-beds above a chamber heated by means of hot-water pipes, and others employ a bed of Oak, Beech, or Chestnut-leaves and stable-litter, or leaves alone $2\frac{1}{2}$ to 3 feet deep, in addition to the hot-water heating. The fruit from a hot-bed of leaves, &c., is always of a better flavour than that from water-heated beds, probably because the soil requires fewer applications of water. If an ordinary hot-bed be used, place heavy loam in a moderately moist condition to a depth of 8 inches on the bed; and if it be a bed over a chamber, use a little more soil, treading or beating it firmly, and let a day or two elapse for the soil to become warmed before planting the Melons. The bed should have a warmth of 80° to 85° . On a bed 3 to 4 feet, and a trellis 6 to 8 feet wide, two rows of plants may be grown on slightly-raised mounds at 3 feet to 3 feet 6 inches apart. In planting, sink the balls till the soil reaches the two cotyledons, but letting these stand clear above the soil, and firmly press the latter round the balls. Secure each plant to a stick long enough to reach the trellis, and pinch off all growths up to within two joints of the trellis. Use the syringe and warm water once only on fine days, and not at all in cloudy moist weather. The plants succeed in a drier air than Cucumbers, and in a warmth of 65° to 70° at night, and 75° on dull days, and 85° on sunny ones. Keep the house rather close for the present, and shade from bright sun for a few days after planting.

THE KITCHEN GARDEN.

By J. W. McHARRIE, Gardener, Strathfieldsaye, Hants.

The Sowing of Onion-seed.—The chief sowing of Onion-seed should be made as early in the spring as the weather and the state of the land will allow; a dry day should be taken advantage of when the soil is dryish on the surface to give the plot a slight dressing of soot and salt, to stir it with a fork to a not greater depth than 6 inches, breaking the clods and making it level. This done make it firm by closely trampling it, and then make it smooth with a wooden rake. It will then be ready for drawing the drills, or rather for placing a row of eight pegs at either end of the plot at 12 inches apart to show where the drills will come, and to mark out the alleys. An Onion-bed may consist of five or six rows, and between the beds there should be alleys of $1\frac{1}{2}$ to 2 feet wide for the convenience of thinning, cleaning, drawing the bulbs, &c. A drill should be drawn to the depth of 1 inch, and when the seed is sown thinly

therein, it should be closed with the feet from both sides at once, and then a short-toothed iron rake should be used to make the surface smooth. Onion-seed may be broad-casted over a bed of 5 feet in width, and covered to the depth of $\frac{1}{2}$ an inch with the surface soil from the alleys. The Onion-bed should be made firm by beating it with the back of a spade, or by passing a wooden roller over it. Straw or pale brown skinned varieties are best for late keeping, and the following will be found excellent: James' Keeping, Bedfordshire Champion, Strasburg, Improved Reading, Brown Spanish, Giant Zittau. Blood Red is perhaps the best red-skinned late-keeping Onion. The white-skinned varieties are, Whits Spanish, White Globe, Rousham Park Hero, all of them good for use in the autumn and early winter months. The Queen is a small early variety, which if sown at this season on warm borders will afford usable bulbs by the end of June. It is a variety that every owner of a small garden should grow.

Rhubarb.—The present month is suitable for lifting and transplanting Rhubarb roots. As this disturbance of the plants checks growth for one season, only a portion of the stock should be lifted. Let the root-masses be carefully trenched out with all their roots, and if they are large, split them up into two or three pieces, each furnished with one or two buds; and plant them $3\frac{1}{2}$ by 4 feet apart in richly-manured, trenched ground, burying the crowns 1 inch below the soil. No stalks should be pulled from the transplanted roots till the following year. The old plantation should be afforded a liberal dressing of bone-meal or cow-stall manure, digging the dressing in without injuring the roots of the plants.

Forcing Vegetables.—The supply of forced French Beans should be maintained by weekly sowings, and a hotbed for forcing Asparagus should be made, following previous instructions as to making it. Place roots of Seakale and Rhubarb in the Mushroom-house or other suitable place; or in the case of Seakale forced in the open, fresh beds may be covered with pots and stable litter and tree-leaves, getting these in a fermented state before putting them round the pots. Preserve the heat in forcing-beds by taking away the old, and placing fresh warm linings of prepared materials around them, and see that the lights are well protected at night with mats and litter; afford air to the inmates whenever the weather is favourable.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Bougardias.—If an increase of the stock of plants be desired, some of the old plants may have the soil shaken from the roots, and the strongest roots removed and divided into lengths, laid in a mixture of leaf-mould and sand in pans or boxes, affording a soaking of water and placing them in a close hot-bed or case. Plants that were placed in pits may now be lifted, have the shoots pruned hard back, and be then placed close together in boxes, filled with leaf-mould and sand, when, if stood on the hot-water pipes in a stove or other hot-house, and kept moderately moist and syringed, they will start into growth in a short space of time.

Eulalias.—Plants which have been rested may have the spent soil shaken from the roots, and be re-potted. If an increase be required, divide the roots, and place the divisions in pots of a size suitable for indoor decoration. A compost consisting of good loam two-thirds, spent Mushroom-bed manure one-third, and sharp sand suits them. In order to have some of the plants available in the autumn, keep them in a cool position, and the soil on the side of dryness for some time longer.

Acalyphas.—The tops of lanky plants may be made into cuttings, and inserted in thumb-pots in light sandy soil, and placed in a hot-bed frame to be rooted. Do not allow the plants to become pot-bound in the early stages, or they will soon lose their bottom leaves. The old stems, after being cut back should be kept rather dry at the root till they break anew, afterwards repotting them in a compost consisting of loam, leaf-mould, and sand, pressing the soil firmly about the roots. When in active growth, abundance of water, with occasional doses of manure-water, are required. Let the plants stand close to the glass, in order to ensure high colour in the foliage.

Cocos Weddelliana.—This Palm should be examined in case Thrips or red-spider infest the foliage, and if any are found, clear them off with a bit of sponge dipped in a solution of Gishurst soap. Plants requiring a shift into larger pots should be afforded a

mixture of good fibrous loam and peat, with some leaf-mould and sand added. Should the roots be in a bad state from over-watering and low temperature, shake the soil from the roots, cut off all decayed portions, and repot into a much smaller pot, affording water only when really needed, and giving them stove temperature. Where a supply of small plants is required for table-decoration, this species of *Cocos* is an extremely useful one, remaining of a usable size in presentable condition for a considerable length of time.

Geonoma gracilis is another useful Palm for decorative work, and a similar kind of treatment should be afforded as that recommended for the foregoing.

Araucaria excelsa.—In the cool conservatory, and for house decoration, this plant remains for a long time in a presentable condition. It requires a fair amount of root-room in the early stage of growth; when, however, the plant comes into a 6-inch pot, repotting is only needed when it has become top-heavy. It should be grown cool, as heat causes spindling of growth, and weakness of stem. When well established and rooted, plenty of water should be afforded, and an occasional dose of soot-water when the plant is in active growth does good.

THE HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Marcello Cherries on north walls are often the last fruit-trees to be pruned and nailed, but the present mild season is exciting them into growth, and they will need attention much earlier than usual. As the fruit is borne chiefly on one-year-old growths, the most suitable method of training is the "fan-shape;" and an important item in the pruning is to remove as much as possible of the old wood yearly, so that young shoots may be laid-in at full length in its stead. These young shoots should now be relieved of the shreds, sticks or ties, by which they were secured in position during the summer, so that the walls may be thoroughly cleaned of cob-webs, decayed leaves, and other refuse that harbour injurious insects, and especially spiders, the webs of which cause much disfigurement of the fruits. So much of the wood on these trees is removed annually that the shoots may be trained-in rather more closely together than other fruit-trees; but young shoots should never be placed closer together than 2 inches. Those shoots that were cut back in the summer to 3 inches should now be further shortened to the base-buds, which will form short fruit-bearing spurs, and furnish young wood for laying-in next season. Keep all the branches as straight as possible when training, and it is fairly easily done as the wood is very pliable. For directions as to a winter dressing for Cherry-trees, see *ante*, p. 98.

Pears.—The pruning of pyramids and bushes should be completed at once, as the buds are fast pushing into flower. Trees that have been recently root-pruned will not make so much growth this year; if they have space, therefore, the leading branches need not be pruned so severely as heretofore. Take care to shorten any spurs that are getting long, or the fruits will be dashed about by the wind. If the trees are too full of wood, take away some of the main branches, to allow plenty of air to circulate among the leaves. Should a tree grow habitually strong, yet produce but few fruit-buds, it should be root-pruned, as see p. 23; but this must be done immediately, or deferred until the autumn. The leading shoots need only be shortened one-third of their length, if there is room for a further extension of the tree. In all cases cut to a bud pointing in the direction the young growth is required to take. Shoots that were shortened during summer to 3 inches should be cut back for half their length. Some varieties form flower-buds on the young growths only, and in pruning these, the shoots without flower-buds may be shortened; and the others, if sufficiently long and pliable, may be tied to the main branches, in order to avoid damaging the fruit by wind, and then be cut off after fruiting.

Apple Bushes.—The above remarks on Pear-trees apply also to Apples, with the exception that Apples should be given much more light than Pears sometimes obtain, in order to obtain fruits of full colour and flavour. Large pyramidal trees are not the best adapted for this, and the finest Apples are obtained from thin, vase-shaped bushes, which are kept quite open in the centre. Considerable care in training is necessary before the bushes can be got into this condition, especially the more upright-growing varieties; but after five or six years the branches become rigid, and the stakes that hitherto have been used can be entirely dispensed with.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

THURSDAY, FEB. 17 { Annual Meeting of Kew Guild at 8 P.M.
 SATURDAY, FEB. 26 { Royal Botanic Society—General Meeting.

SALES.

MONDAY, FEB. 21 { Roses, Fruit and other Trees, Bulbs, &c., at Mr. Stevens' Rooms.
 TUESDAY, FEB. 22 { Imported and Established Orchids, Carnations, Begonias, Montbretias, Azaleas, &c., at Protheroe & Morris' Rooms.
 WEDNESDAY, FEB. 23 { Japanese Lilies, Continental Plants, Roses, Gladioli, Herbaceous Plants, &c., at Protheroe & Morris' Rooms.
 THURSDAY, FEB. 24 { Roses, Fruit and other Trees, Bulbs, &c., at Mr. Stevens' Rooms.
 FRIDAY, FEB. 24 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—39° 8'.
 ACTUAL TEMPERATURES:—

LONDON.—February 16 (6 P.M.): Max., 54°; Min., 45°.
 PROVINCES.—February 16 (6 P.M.): Max., 51°, south-west Ireland; Min., 36°, Aberdeen.

San José Scale. THE American horticultural journals are filled with articles on the spread of this pest (figured in our last issue, figs. 37-40, p. 103), and with the enactments made by the several States in the Union, and Provinces of the Dominion, to prevent its introduction, or check its development. On the whole, we glean that while there is ample reason for care and watchfulness, there is none for panic, and that, like the Colorado beetle, it may not come at all.

At a recent meeting of the New Jersey Horticultural Society, Prof. J. B. SMITH, the State entomologist, is reported in the *National Nurseryman* to have said:—

"I am happy to be able to say that I believe that the insect can be controlled with comparatively little trouble, but will say at once that no such thing as extermination now is possible in this State, though it is possible to completely rid one or a hundred trees, or an entire orchard, which is quite a different thing from exterminating it. My chief reason for saying that the insect cannot now be exterminated is, that it has become established everywhere in the region between Burlington and Camden. We must deal with the scale as a native insect in the future. We must recognise the fact that it is one more enemy to be fought by the fruit-growers, but at the same time there is no reason why that enemy should not be conquered like others.

"We know that kerosene will kill San José scale at any time of the year wherever it touches them. It will not harm plant-life if not used in excessive quantity or under such circumstances as to prevent evaporation. Kerosene mixed with soap makes a mixture which will not readily allow the kerosene to evaporate. The kerosene must be put on in the finest possible spray, and no more used than is absolutely necessary to wet. To show what I mean, I say that with an atomizer holding one pint I covered completely a Pear-tree in full foliage, 10 feet in height, and with a diameter through the branches of fully 5 feet. The application cost but one cent. for foliage. Whale-oil soap is not so effective as kerosene in penetrating the crevices. There is one point not quite settled, and that is the effect of kerosene upon fruit-buds."

If it can really be controlled by spraying with kerosene emulsion, the danger to our orchards is less than in the case of "American-blight." At any rate, our horticultural

lecturers should make known the characteristics of the insect, and insist on the necessity for constant watchfulness.

For years we urged the establishment of peripatetic horticultural teachers, and of late we have had the pleasure of noting the good work accomplished by them now that they are appointed. The threatened spread of the San José scale is a case in point. Energetic as the conductors of the horticultural press may be, and wide as is their circulation, yet it is certain that a large proportion of the classes most concerned and most in need of information, either do not read, or do not heed what they read. How often do we find information, which has been given repeatedly in these columns, requested, not only by beginners and amateurs, but by business men on subjects directly concerning their industry! Not a week passes in the season but diseased Tomatoes or Cucumbers, which have been described and figured scores of times, are sent us, not only by the amateur or private gardener, but by the commercial grower; who is obviously quite uninformed as to the nature of the disease, and the means, if any, of dealing with it. A competent instructor, with illustrative specimens and drawings, can reach some classes of the horticultural community more directly than the press can do, and hence it is that we suggest the San José scale as a subject for a lecture before fruit-growing communities. A great deal of good will be done by the inculcating of general principles, even if in this particular case there may be no need to apply them. There are only too many similar visitations where, as Captain CUTTLE says, "the bearings of this observation lays in the application on it."

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held on Monday, February 21, 1898, when a paper will be read by Mr. T. W. WHEELER, Q.C. (Associate), entitled "Legal Liability for Professional Opinion." The chair will be taken at 8 o'clock.

LINNEAN SOCIETY.—Mr. W. C. WORSDELL, F.L.S., read a paper at the meeting of the Society on Thursday, February 3, on "The Comparative Anatomy of certain Genera of the Cycadaceæ." The chief points touched upon were:—In *Cycas*, the conuplicate venation and arrangement of the bundles in the fleshy hypogæal cotyledons, the secondary extra-fascicular rings, the concentric cortical strands, and, in one species, the peculiar concentric structure of the leaf-traces, in the stem, and in the hypocotyl; some curious concentric strands running obliquely out from the cylinder, and, in a small seedling, the secondary vascular cylinders lying outside the normal stele; in the seedling of *Stangeria paradoxa*, the small primary concentric bundles in the stalk common to the two cotyledons, which both higher up and lower down become collateral, and in the adult stem the occurrence of a secondary concentric strand in the periphery of the cortex, which appeared to be the remnant of a once normal system of nude strands; and in *Ceratozamia mexicana* the vertical succession through the pith of a large stem of effete peduncular cylinders the peduncles which successively terminate, the stem being in turn pushed to one side, and their basal region enclosed by a lateral shoot, which continues the main vegetative axis. In conclusion, the author endeavoured to show that certain characters in the vegetative structure of these plants showed them to be nearly allied to, or descended from, certain fossil Fern-like plants, notably the *Medulloseæ*, and these characters were: the extra-fascicular zones in the stem of *Cycas*, which really represent the outer portion of the flattened concentric strands in the stem of the *Medulloseæ*, the inner portion of which has died out; and all the various concentric structures above-mentioned. For the type of structure prevailing in the

ancestors of the *Cycads* would have been the concentric, whereas in their descendants it is the collateral. The significant outcome of this study is to form, in the vegetative characters of these plants, a connecting-link, over and above that already afforded by the discovery of spermatozoids in *Cycas* and *Ginkgo*, between "flowering" and "flowerless" plants. Dr. D. H. SCOTT, F.R.S., in criticising the paper, referred to the importance of certain facts which had been elucidated by the author, and which he himself was able to confirm.

ROYAL HORTICULTURAL SOCIETY.—"The details given on p. 48 of the Society's 'Arrangements, 1898,' in reference to The Sherwood £10 10s. Silver Cup for Annuals and Biennials, do not appear to some people sufficient, and various applicants have asked the following questions, which, with their answers, the President and Council would be greatly obliged by your kindness in publishing for the information of others:—"

Q. "The contents of each tube must consist of one variety only." Am I to understand that *Coreopsis grandiflora* and *C. Drummondii*, or *Nasturtium* "Cloth of Gold" and *N. "Crimson King"*, and so on, may not be exhibited in the same tube? A. They may not.

Q. Are the tubes "not to exceed 3 inches diameter at the top side?" A. They must not exceed.

Q. "The vases must be provided by exhibitors, and must not exceed 6 inches in diameter inside." Does this apply to the "plain glass vases" only? A. Yes. The tubes must not exceed 3 inches, nor the vases 6 inches.

Q. Who provides the tubes? A. Exhibitor, unless he is content with the stoneware-jars the Society provides at all times.

Q. Will Regulation XI. be enforced—"All specimens must be the *bonâ fide* property of and grown by exhibitor"? A. Yes.

Q. Must exhibitor stage (i.e., arrange) his own exhibit, or may he call in professional help? A. A special person may not be procured for this special purpose, exhibitor or his gardener, or some member of the family of either, must arrange exhibit.

Q. Can the exhibit be repeated? A. Yes.

Q. Will other foliage be allowed? A. Only the foliage of the variety itself.

Q. May grasses be mingled with flowers? A. No.

HORTICULTURAL CLUB.—The twenty-third annual house dinner of the club was held on Tuesday, the 8th inst., when there was a larger gathering than on any previous occasion. The chair was occupied by Sir J. D. T. LEWELYN, Bart., M.P., chairman of the club. There were also present Mr. Harry J. Veitch, Vice-Chairman; the Rev. W. Wilks, the Rev. Joseph H. Pemberton, Messrs. J. Gurney, Fowler, and J. Hudson (newly-elected members of the Council of the Royal Horticultural Society), James Walker, Geo. Bunyard, Geo. Munro, C. J. Wise, Peter Kay, Harry Turner, J. Assbee, J. R. Featherby, A. Goodinch Williams, G. Paul, H. J. Pearson, Charles Pearson, Philip Crowley, A. Watkins, J. Sweet, R. Gorton Salmond, H. T. Armitage, R. Rieches, &c., and the Secretary. Mr. Geo. Bunyard arranged for an excellent selection of instrumental and vocal music to be given during the evening; an admirable dessert was provided by the kindness of Messrs. Geo. Munro, Assbee, and Peter Kay, while the tables were beautifully decorated with flowers and plants from Messrs. J. Veitch & Sons. The usual toasts were given, and altogether a most successful meeting took place. The condition of the club was stated to be very satisfactory, and several new members were added.

CHESTER PAXTON.—At the usual fortnightly meeting, held in the Grosvenor Museum on Saturday last, Mr. C. FLACK, of Cholmondeley Castle Gardens, read an able and instructive paper entitled, "Grape Growing for a Private Establishment." Mr. FLACK, who is a recognised authority on Grape-growing in Cheshire, dealt extensively with the subject, entering fully into all the details of treatment and cultivation of the Vine, and gave a list of the best and most

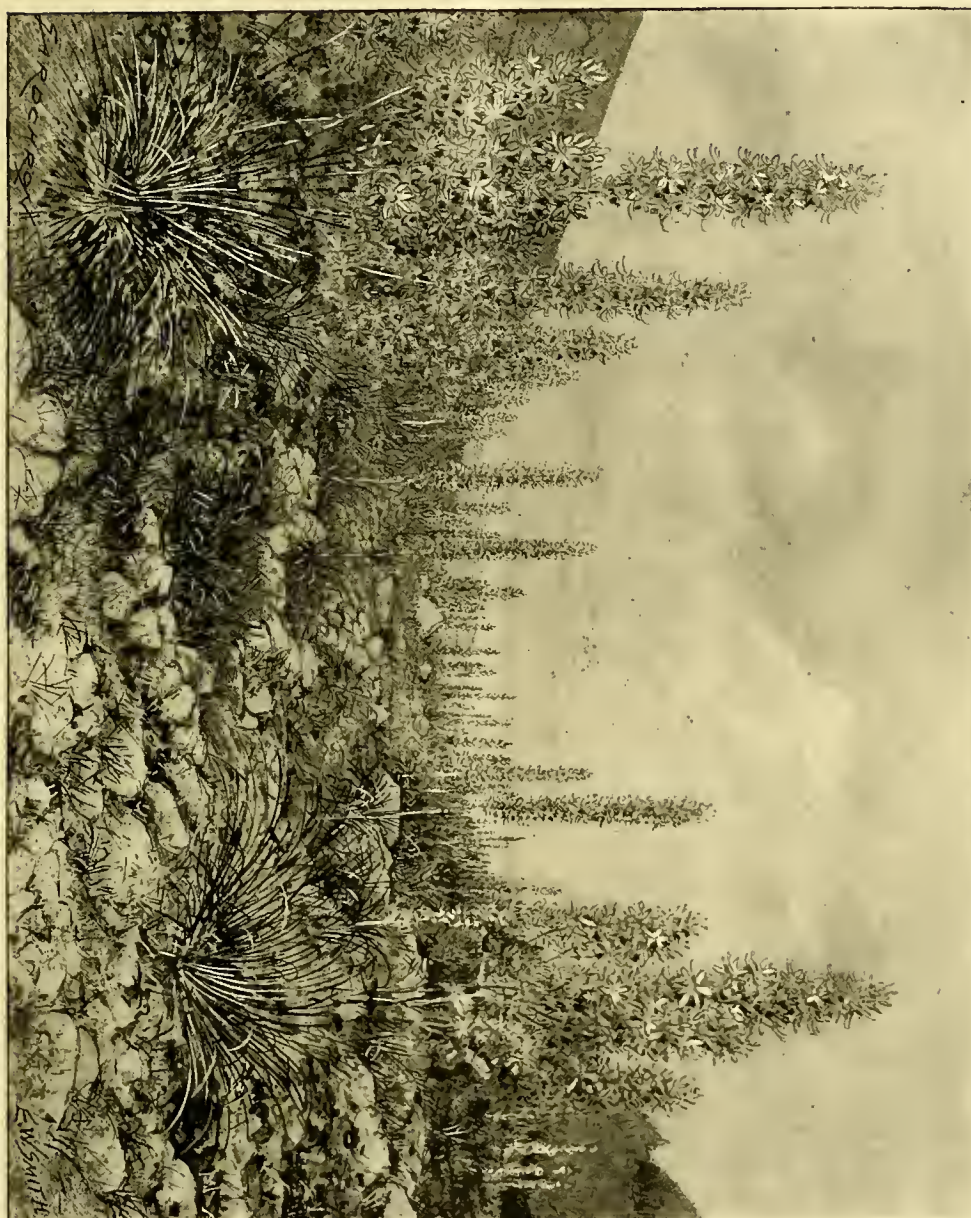


FIG. 44.—ASPHODELINE BALANSE GROWING IN THE OILICIAN TAVRUS: FLOWERS WHITE. (SEE P. III.)



useful varieties for keeping up the season's supply. An interesting discussion followed the reading of the paper.

KEW GUILD.—The annual general meeting will take place on Thursday evening, February 24, at 8 o'clock, in the Lecture Room, in the Royal Gardens. Entrance by Melon-Yard Gate.

NATIONAL CHRYSANTHEMUM SOCIETY.—The Second Annual Smoking Concert in connection with the above Society took place at Anderton's Hotel, Fleet Street, the object being the benefit of the Reserve Fund. The room was delightfully decorated by plants kindly lent by Messrs. W. Cutbush & Son, Highgate Nurseries; the floral decorations were carried out by Mr. D. Ingamells. The chair was taken by Mr. James H. Veitch, F.L.S., supported by his brother Mr. J. G. Veitch and friends, the large room being filled to overflowing, a considerable number of ladies being present. An excellent and varied programme was provided, and at its close a vote of thanks was given to the chairman, proposed by Mr. Richard Dean, V.M.H., seconded by Mr. Brian Wynne, his health being also drank with full musical honours. The proceedings were brought to a close, by singing "Auld Lang Syne."

NEW PLANTS.—A descriptive list of the new garden plants of last year has just been issued as Appendix II. of the *Kew Bulletin*. A similar list has been prepared and published in the same way annually at Kew since the year 1888. These lists are useful as a guide to the correct names of plants, and as fixing the date of their introduction into gardens. They include not only plants brought into cultivation for the first time, but the most noteworthy of those which have been re-introduced after being lost from cultivation. Other plants included in the list may have been in gardens for years, but either had not been described or their names had not before been authenticated. Only species, botanical varieties, and hybrids with botanical names, are included. The list is compiled from all the botanical and horticultural publications in which new plants are known to be mentioned. The name and that of its author are given, the place of publication is cited, with a brief description of the plant, its habitat, and the name of the garden into which it was first introduced. The total number of new plants enumerated in this last list is 338. They include 160 Orchids, 8 Ferns 48 stove plants, 34 greenhouse plants, 77 hardy herbaceous plants, and 11 hardy trees and shrubs. As usual, Orchids are by far the most numerous; among them are 25 Cyrtipediums, 25 Cattleyas, 10 Dendrobiums, 12 Lælio-Cattleyas, 8 Miltonias, and 13 Odontoglossums. The list may be had from any bookseller, or from the Royal Gardens, Kew, price 4d.

"LA SEMAINE HORTICOLE."—The number for February 12 is entirely devoted to an account of the career of the late JOHN LINDEN, and the ceremonies observed at his funeral. The most valuable portion of this biographical document are the account of his travels in South America, and the long list of remarkable plants introduced by him. These alone should ensure the preservation, in our libraries, of what is no ephemeral production. The filial piety of the son, so pleasant to witness during the life of the father, has touchingly manifested itself now that the grave has closed over the energetic man whose loss will be felt by botanists and horticulturists throughout the world.

M. C. BALTET.—The Russian Government has conferred the decoration of the Order of St. Anne on M. CHARLES BALTET, of Troyes, in recognition of his important work in pomology and allied subjects, appreciated in Russia for more than thirty years. M. BALTET, when the telegram announcing the fact was received, was presiding over a meeting of the horticultural section of the Universal Exhibition. The news was received with cordial acclamations.

CATTELEYA ACKLANDIÆ ALBA.—The succession of law-suits in reference to this plant has been so far settled in favour of Mr. ASHWORTH, the purchaser, who is adjudged by the Court of Appeal to receive £50. It is possible the case may be carried

one step further, to the House of Lords, so that no comment is at present desirable. As the case is one of great importance, and will probably in the future be cited as a precedent, we append in another column the *Times* report of the case in full (see p. 118), reserving comment of our own till we know when the lawyers have finished their work.

LOUGHBOROUGH AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—On Wednesday evening, February 9, the members of the above Association attended a lecture on "Plant-food," by Mr. E. LUCKHURST, Lecturer to the Derbyshire County Council, and Horticultural Instructor to the Midland Dairy Institute, Kingston-on-Soar, Mr. A. HEMSHIRE, gr., Beaumoor, in the chair. The lecturer dealt with the condition of the soil in regard to the growth of plants, and its manipulation, manures, &c., illustrating the subject with the aid of the blackboard.

SHROPSHIRE HORTICULTURAL.—The annual meeting of this Society was held at Shrewsbury last week, the financial results of the year were laid before the members. The receipts (which were the largest the society has ever taken) amounted to £4517 4s.; the expenditure to £3384 10s. 3d., thus leaving a gross profit on the summer show of £1130. The amount the Society paid for prizes including medals during the year amounted to £982 1s. Hearty votes of thanks were given to the Fruiterers' Co. of London for their splendid medals, and also the Veitch Memorial Trustees for their medal and prize. T. F. KYNERSLEY, Esq., was elected president for 1898. The schedule for the coming year was passed, the prize-money being nearly £1000.

THE DOG ROSE AS A STOCK FOR ROSES.—It is asserted by some American cultivators that this stock is inclined to rest during the winter, and on that account unsuited for Roses which are to be forced into bloom at an early date. This idea is regarded by others as imaginary, and they hold that the scion has as much or more to do with the inclination to rest as has the stock. What are the opinions of Rose-growers on this side?

TOBACCO-DUST.—Referring to the Rev. C. WOLLEY DOD's article on this subject, Messrs. CORAY & Co., 13, Finsbury Street, E.C., write, that they have been makers of this since 1866, and that it is quoted in their wholesale price lists, which are in the hands of most seedsmen.

MARRIAGE OF A LADY GARDENER.—The Hon. ALICIA AMHERST, the authoress of the *History of Gardening*, and the only lady member of the Worshipful Company of Gardeners, was, on the 16th inst., married to Mr. EVELYN CECIL, nephew of the Prime Minister. The Worshipful Company, as in duty bound, presented a bouquet, and the Orange-flowers were furnished by Miss. WILLMOTT, V.M.H.

PUBLICATIONS RECEIVED.—*The National Dahlia Society Annual Report.*—*The Garden*, February—*Proposed Revolution in the Science of Meteorology*, by W. G. Wenlay, Chelmsford. — *Orchid Review.*—"Jevremovac," exchange list of seeds of the Botanic Garden, Belgrade, Professor St. Jaksic, Director; Z. Jurisic, Curator.—*Wiltshire County Council Report on the Calne Agricultural Demonstration* (Eyre and Spottiswoode).—*The Flora of Berkshire*, by G. C. Druce, M.A., Oxford, at the Clarendon Press.—*The Culture of Vegetables and Flowers* . . . by Sutton & Sons, Reading, 7th edition (Simpkin, Marshall, & Co.).—*A Flower-hunter in Queensland and New Zealand*, by Mrs. Rowan (John Murray).—*Twenty-first Annual Report, Connecticut Agricultural Experiment Station*, 1898.—*Blotter and Diary*: together with an account of the Chinchas Guano Islands, by The Anglo-Continental (late Ohlendorff's) Guano Works Co.

KEW NOTES.

PITOSPORIUM BICOLOR.—Flowering branches of this rare and distinct species of *Pitospodium* have lately been sent to Kew by Mr. Benbow, the gardener at

Abbotsbury Castle, where it has formed a dense shrub 18 feet high in the open air. It is a native of Victoria and Tasmania, ascending to 4000 feet in the latter island, where it is said to always grow in shady ravines, or shady places on the sides of rivers and streams in rich, moist, alluvial soil. It attains a height of from 20 feet to 40 feet, with a trunk 1 foot in diameter, and flowers in October and November, afterwards ripening an abundant crop of red drooping berries about the size of Peas. A form of it is figured in *Rege's Gartenflora*, vol. i. (1852). The Abbotsbury plant has numerous short branches crowded with linear-lanceolate leaves from 1½ to 2 inches long, the margins revolute, the upper surface dark green, the underside clothed with felt-like wool. The flowers are solitary in the axils of the leaves, the pedicels being ½ inch long, and the tawny-yellow and red corolla is ¼ inch long. It is an interesting evergreen for the warmer parts of the kingdom, and is worth a place among curious plants for the conservatory.

VACCINIUM GLAUCO-ALBUM.

A plant of this comparatively unknown species has lately been sent to Kew by Mr. Thomas Acton, in whose garden at Kilmacurragh, Rathdrum; it is quite hardy, forming a dense shrub with angular branches, whorled, bright green, leathery, corrugated obovate leaves 2 inches long, the margins serrate, the underside white. Its flowers are produced in dense axillary racemes 3 inches long, with large white persistent bracts, and egg-shaped white and pink corollas ½ inch long. It is a native of Sikkim Himalaya at an altitude of 10,000 feet, where it was discovered by Sir Joseph Hooker. It belongs to the same section of the genus as *V. serratum*, which is cultivated in the temperate-house at Kew, and which is represented in the *Botanical Magazine*, t. 5103 (var. *leucobotrys*). *V. glauco-album* will probably require protection during winter—in the colder parts of this country, at any rate. IV. IV.

HOME CORRESPONDENCE.

THE ROYAL HORTICULTURAL SOCIETY'S COMMITTEE AWARDS.—No doubt presently, when the matter comes to be dealt with in a practical and sensible way, the subject of medal and certificate awards by the various committees can be satisfactorily settled. Had the Council invited a conference with selected representatives of the three committees prior to issuing any communication of the nature published in the *Gardeners' Chronicle* recently, the matter might have been determined without irritation. But the proposed arrangement, whereby the committees shall appoint a small number from each body to deal with their own respective groups or exhibits, furnishes no guarantee that there will be any reduction of medal awards. On the other hand, were it ordered by the Council that no certificate or merit award be made by any committee except on a vote of two-thirds majority of all the members present, then a change would soon result. The Fruit Committee, at its first meeting this year, awarded two First-class Certificates, a most unusual circumstance; but then, these were awarded to standard fruits that may be in wide cultivation fifty years hence. An Award of Merit was, however, made by a vote of, I think, six to four—an absurdity when twenty-two members were present. Under the rule advised, to carry this award the majority should, excluding the chairman, have been fourteen. Had that been the rule, the award would not have been made. Whether this proposed rule would work with the Floral Committee or not, it would with both the Fruit and Orchid Committees, as their range of subjects is much more limited. I draw attention to the fact that in the *Gardeners' Chronicle* alone is published the return—evidently a belated one—of the medal awards made by the Hybrid Committee on the 6th inst. There are ten such awards, and of these, three only are to amateurs, the remaining seven being to the trade. That represents, I believe, a fair average result of the Drill Hall meeting awards. But still there were collections or groups exhibited by four other members of the trade, all as well worthy of medals as some of those that were subjects of awards, and that number raises the proportion of trade exhibits materially. It is thus evident that by far the larger number of the Drill Hall medals certainly fully two-thirds, if no more during the

year go to the trade. To go on as before, granting them of course with judgment and discretion to amateurs, can do no harm, and would leave little room for cavil. As to the trade groups, I would suggest to the Council that the Award Committee make no medal awards to these, but only marks or points, the maximum of which and the basis of granting them, shall be duly specified. Then at the end of each year these marks or points shall be placed to the credit of each trade exhibitor, and one gold medal, which would be taken by the same trader once in five years only, with silver medals of substantial value, should be awarded according to the number of points gained during the year. How many medal awards would that method save, and how highly prized would be the annual medals when won! I am not sure whether it would not lead to a very healthy competition on the part of the trade to obtain what would then be real honours. A. D.

MORISIA HYPOGÆA.—In reply to my friend, Mr. Arnett, I may say that it is quite possible to get seed from *Morisia hypogæa*. I had the plant for several years, and failed to get any seed. I then determined to practice the maxim Max Leichtlin once gave me—"You can get seed from almost anything, if you'll only take the necessary trouble." Each day I visited the plant armed with a camel's-hair brush, and dabbed it into flower after flower. The result was, that presently the stalks began to bend over, and buried the swelling pods deep down among the foliage. Eventually I got quite a nice crop of seeds, which I am sowing this spring. In the same way I got seed from *Tecophilæa cyano-crocus*, *Lithospermum Gastoni*, and other choice things. The brush evidently supplies the place of some fertilising insects which we have not got here. Arthur K. Bulley, West Kirby, Cheshire.

AN OLD TREATISE ON THE DAHLIA.—In the *Gardeners' Chronicle* for May 22 last year, I gave a short sketch of Dahlia bibliography. Quite recently a friend in America has forwarded me a copy of a curious little treatise, with the existence of which I was not previously acquainted, bearing the title of *A Treatise on the Culture of the Dahlia and Cactus*, by E. Sayers, author of the *Flower-garden Companion*, &c., which was published in Boston, U.S.A., as far back as the year 1839. It is 6 inches by 4 inches in size, and has stiff cardboard covers, and consists of seventy-two pages, the first forty-eight of which are devoted to the Dahlia. The author acknowledges his indebtedness to the works of Paxton and McIntosh, and has probably adapted much of their teaching to the requirements of American growers. Besides a brief survey of the history of the Dahlia, a descriptive list is given; and I only draw attention to the work now by way of complementing my former observations on the subject, and especially as Sayers' treatise is almost, if not wholly, unknown to present-day English growers of the Dahlia. C. H. P.

THE PRUNING OF FRUIT-TREES.—I do not pursue the matter of pruning without good reasons, it being an important subject. Mr. Kettle's remarks on p. 74 do not answer my questions. I do not understand what Mr. K. means by "pruning to a certain number of inches" "which will not always work." Where did Mr. K. read anything I said about any number of inches? Certainly not on p. 45, where my questions will be found, but which are not answered by Mr. Kettle. He quotes what was said about Pitmaston Duchess on the Pear stock, "side by side with another on the Quince," one of 8 feet, the other 3 feet, yet both bear fruit; and why not? still I say, let me have the tree first, and afterwards the fruit. What of the concluding remarks, that "pruning tends to multiply branches close home," and so on—why, the very thing to make a tree shapely. Mr. K. will some day learn that the habit of fruit trees varies with the variety, yet all shoots when a tree is young should not be pruned to any particular number of inches, but according to their strength, and the form the tree is to take—standard, espalier, fan, or cordon. If the absence of pruning will accomplish these ends, then I have a great deal still to learn. Does Mr. K. assert that a fruit tree will develop into as shapely a tree without as with pruning? Charles Hott.

LAUDANUM.—A year or two ago I raised the question in the *Gardeners' Chronicle*, when and why was the name Laudanum transferred from the gum of the Cistus to a tincture of opium? That laudanum, ladanum, labdanum, are different ways of spelling the same word there can be no reasonable doubt. Clusius, writing in the sixteenth century (*Rariorum Plantarum Historia*, p. 81) says "the gum of the Cistus is

called 'in Greek and Latin Ladanium, and in shops Laudanum.'" Skeat (*Concise Etymological Dictionary*, p. 239) fully discusses the word Laudanum, and shows that it is certainly the same as Ladanium. Whilst recently reading the "Life of Paracelsus" in the *Penny Cyclopædia*, I found that this alchemist, before the middle of the sixteenth century, was the inventor of a wonderful panacea, which he called Laudanum. In the dictionary at the end of his biography it is thus described:—"Laudanum Paracelsi est medicina laude digna, ex duabus tantum rebus constans, quæ morbos fere omnes curabat." As the same biography tells us that Paracelsus was the first to bring opium into general use as a medicine, and as the composition of Laudanum was kept by him a secret, it is highly probable that it was a mixture of opium and the gum of the Cistus, which would operate powerfully as an anodyne, and become as universal a popular remedy as chlorodyne at present is in France. The words *laude digna* in the above passage show the probable origin of the absurd derivation *laudandum*, i.e., "to be praised," which we find given for *laudanum* in almost all old dictionaries. C. Wolley Dodd, Edge Hall, Malpas.

PEACH AND NECTARINE TREES AT CALLIS COURT.—Some of the best and healthiest Peach and Nectarine trees which have come under my notice I saw in the gardens of H. Marks, Esq., Callis Court, Broadstairs. They are planted against a wall, which they cover for a distance of 100 yards. The trees have certainly been planted too closely together, being only 12 feet apart, but rather than take out each alternate tree the wall has been raised about 4 feet, thus affording space for the upward extension of the branches, and averting the necessity for much restrictive pruning so detrimental to the well being of the Peach. The gardener, Mr. Richardson, lays-in the shoots thinly and evenly over the trees, and these give great promise of a crop the current year. The varieties consist of many of our very best and most profitable kinds, including Waterloo, the best early Peach, and some of the best late varieties; the only variety which does not succeed at Callis being Golden Eagle, for although the tree bears well, the flavour, I was told, is inferior. H. Markham.

GALANTHUS GRANDIFLORUS.—I am sending you some flowers of *Galanthus grandiflorus*, which I think you may like to see. It was described by Mr. Baker in the *Gardeners' Chronicle* of March 25, 1893, under the name of *G. maximus*, and since changed by him to *grandiflorus*, as he found there was already a *G. maximus*. The first name would have been more descriptive of this form, as though the flower is fine its striking feature is its very robust habit of growth, with very long flower-stalks, which are thick and strong, and stand well up. Though like *G. plicatus* in the leaf, patches of these varieties growing side by side look very different. R. O. Backhouse.

WILLIAM CATTLEY.—Mr. Hemsley is a little premature in saying that we do not intend to include Cattley in the supplement to our *Biographical Index*. He will probably appear there, although his claims to insertion are very slight; and I confess Mr. Hemsley does not, to my mind, show any good reason for including him. With reference to Van Braam's *Icones Plantarum*, it may be noted that the lithographs were done by Charles Henry Bellenden Ker, whose initials are attached to some of them (see *Pritelz*, 10,779; and *Biogr. Index*, p. 96). Jas. Britten.

STERNBERGIA MACRANTHA.—The fact that *Sternbergia lutea* does not flower freely in every garden is pretty well known; and it is to be feared that *S. macrantha*, figured on p. 97 of the *Gardeners' Chronicle*, will not prove more accommodating. Mr. Edward Whittall, of Smyrna, sent some bulbs of this fine *Sternbergia* to this country a few years ago, and I was indebted to him for several bulbs, and succeeded in flowering them under glass the first season. Planted out I have, however, been unable to flower it, although it is apparently quite hardy. I believe it will require a thorough "roasting" in summer in most parts of the country. S. Arnott, Carsethorn, Dumfries, N.B.

CALANTHE VEITCHI.—I read with interest "W. R. Cadlands" remarks at p. 104 of the *Gard. Chron.* about the rather abnormal flowering of his plants of *Calanthe Veitchi*, as my own experience chance to be similar, and it occurred two years in succession. In one case the flower-spike was more than 3 feet long, measured from the base of the pseudo-bulb, one break at the first leaf-joint, and another at the

apex of the spike. In another case a bulb had two large flower-spikes, which came from the base of the pseudo-bulb, and one from its apex. In both instances the terminal flower-spikes were small, and they were pinched off before the flowers expanded. The pseudo-bulbs were very large, and the abnormality was probably due to their being fully matured. I had a plant of *Calanthe vestita* which produced two flower-spikes at the base, and one on the top of the pseudo-bulb, where the one joint is not exactly at the apex, as in the case of *C. Veitchi*. C. L. Branson, Gardener, Colshill Park.

NOVELTIES IN CHRYSANTHEMUMS.—On p. 96 of the late issue of the *Gard. Chron.*, you publish, under the head "Novelties in Chrysanthemums," and signed E. Knowles, a communication which is almost word for word a copy of a note from my pen, which appeared in the *Gardeners' Magazine*, on p. 823 of a late December number in 1897. I enclose cutting, which please return, which will prove to you what I say, as a clerical error which I corrected, also appears in your correspondent's somewhat smart piece of work. W. H. Lees. [The communication was sent to us in the ordinary way by Mr. Knowles, of the Gardens, Yewden Manor, Henley-on-Thames. We were entirely ignorant that the note was substantially a copy of a communication of Mr. Lees that had previously appeared in the *Gardeners' Magazine*. We have been grossly imposed on, and all we can do is to express our great regret to our cotemporary, to Mr. Lees, and Mr. Wells, and any one else concerned. Ed.]

VALUABLE LATE APPLES.—In this neighbourhood I still find none to surpass Newton Wonder and Royal George, which are equal in every way, I think, to Bramley's Seedling or Prince Albert. The last-named, however, is a grand Apple, and I enjoy it as a dessert fruit. Newton Wonder, the Derbyshire Apple (raised, I believe, at King's Newton), I find no trouble in selling at 25s. per cwt. (a price that I also obtain for Royal George). I am sending you samples of Newton Wonder, Royal George, and Bramley's Seedling. All the best fruit have gone, and those I send are ordinary examples. They were cultivated near to each other, Bramley's Seedling having the sunniest spot, Royal George next, and Newton Wonder in the lowest ground on a sunny slope. Geo. Bolas, The Gardens, Hopton Hall, Wirksworth, Derbyshire. [The fruits are very commendable and well preserved. Newton Wonder is undoubtedly a first-class late-keeping kitchen Apple, and it succeeds capitally in the Midlands, and equally so in Kent. Royal George was shown by Scott of Merriott at the Royal Horticultural Society's Apple Conference, and is described in the report of the proceedings, but we fail to find it mentioned in Dr. Hogg's *Fruit Manual*. The fruits are of moderate size, very solid, have little core, and on one side are coloured similarly to the Beefings. Ed.]

THE PREVAILING MILDNESS OF THE WEATHER.—Whilst looking round our nursery to-day, we noticed the variegated Hollies to be growing, many of the silvers having as much as 2 inches of new growth upon them. The Daffodils are also forward; but, perhaps, the most remarkable of these bulbs was the white trumpet Narcissus, Mrs. Thompson, which has leaves 12 inches high, and was showing flower-buds; and *N. poeticus præcox* are 8 inches high and showing for bloom. This variety of Pheasant's Eye being always the earliest, and this year it is earlier than usual. The nursery is 600 feet above the sea-level, and lies 6 miles west of Birmingham, so that the situation cannot be considered a very warm one. Pope, Birmingham. [As touching upon this feature of the season, we received from the head gardener at Enville Hall, Worcestershire, some young shoots and leaves of the Horse-Chestnut, the former measuring 4 inches in length, and the latter 8 inches in greatest width. Ed.]

—In 1856 just such a mild winter as the present one was experienced, and at the end of the month of January vegetation was very forward. But a different state of things prevailed at the end of February, and during March cold, easterly winds, and sharp black frosts occurred, with an almost entire absence of sunshine. On March 10, a keen frost set in which increased in severity on the 11th and 12th, and caught many gardeners napping, and caused much destruction of early crops. Apricots that were in full bloom suffered greatly; one night the mercury fell to 22° Fahr. The bitter experiences of gardeners in 1856 may be repeated in 1898, but to be forewarned is in a measure to be forearmed, and by retarding instead of forwarding outside crops, and by having plenty of

protecting materials at hand ready for immediate use such as a good big heap of straw stable-litter, dry fern and hay, frigidomo, canvas, mats, &c., and a lot of pliant hazel rods for forming bows to support heavy coverings. R. D. [The gardener will be prepared for whatever may happen. Ed.]

FREESIAS.—Having read with much interest the notes, in which Mr. Kerry has written inquiring if

PASSIFLORA EDULIS.—I am pleased to see the figure of *Passiflora edulis*. When I was a young gardener in a private place near Southampton, about the end of the "forties," there was in the garden a somewhat lofty lean-to greenhouse, and at the back of it there had been planted the true form of *P. edulis*. The house had an old-fashioned plant-stage, with shelves rising tier above tier, but with a walk behind it, and a narrow border against the wall. In

— I am much interested in the correspondence which has recently taken place in these columns respecting the above, as I had cultivated the species and fruited it for many years. I had it trained on the back wall of a late lean-to vinery at Longford Castle, its roots being confined to a narrow border. The illustration of fruit and leaf given in last week's *Gardeners' Chronicle* is a very good one. The shell-like epidermis containing the seedy, Tomato-like pulp, was of a dark-purplish colour, when ripe, as described, and the pulp highly perfumed, and has a pleasant acid flavour. All the same, I am in agreement with the editorial note, "something to suck, but little or nothing to eat." The plant is propagated from seeds or cuttings in warmth. The annual shoots that are not wanted for further extension should be cut back to the old wood, and the latter trained thinly over the wall or along the supports near the roof. The wall is, in my opinion, the best place for *Passiflora edulis*, a place on the roof being too valuable to be occupied by a mere novelty in the way of fruit. H. W. W.

LÆLIA ANCEPS WADDONIENSIS.—There is an error in your report of the Royal Horticultural Society's meeting in respect to the variety of *Lælia anceps* then certificated. It was entered in the Society's book as *L. a. Waddoniensis*, and as such it was labelled, so that I am at a loss to know how it got named *Crowleyana*. J. Harris, *The Gardens, Waddon House, Croydon*. [Our representative informs us that the name was altered several times in the Drill Hall, and the one given in the *Gardeners' Chronicle* report was thought to be the final one. Ed.]

MADRESFIELD COURT GRAPE.—We have heard but little recently of the splitting of the berries of this valuable Grape, one of the very best black varieties grown. Some years ago it was thought by many gardeners that the variety would fail to become a favourite Grape for private gardens, seeing the unfavourable reports concerning the berries cracking that appeared from time to time in the gardening press; but now almost everyone is speaking in its praise. With respect to the cause of the splitting there were various opinions, and various plans recommended for its prevention, some recommending the withholding of water at the roots, but experience teaches me to afford plenty of water; and I often thought that where the splitting was prevalent, it might be traced either to dryness of the soil, or something that checked the development of the berries, and consequently the skin. It is a well-known fact that a cool, moist atmosphere in a vinery will cause the berries of several varieties to split, but that was not the case with Madresfield Court—at any rate, not in every instance. As one preventative, a little warmth should be maintained at all times in the eating apparatus; and when the berries are approaching full size, the air of the vinery should not be kept very moist, and the danger is greatest in close, cloudy weather. H. Markham.

BLenheim PIPPIN APPLE AT RUXLEY LODGE.—I believe tradition tells us that this famous Apple was raised at Woodstock very early in the present century. That a claim is put forward as to such suggested origin there can be no doubt, but all the same, this said Woodstock seedling might have been but a natural reproduction of a variety long in existence. I was tempted, of course, by the evil demon of scepticism to think so much the other day, when looking at a wonderfully old horizontally-trained tree of the variety in the old monastic, or lower kitchen gardens, at Ruxley Lodge, Esher. Mr. Miller assured me that it was the true Blenheim Pippin, or Orange. The stem of this interesting and aged tree is, near the ground, about 2 feet in diameter, and to a large degree seems to be hollow. Almost solely there runs off on either side one huge branch to a great length, which is, as is usual, densely studded with spurs on the upper side, and produces at the extremities stout growths, which show how much of vigour there is in this very old tree. In estimating the age of this tree, we are bounded by the assumed somewhat modern origin of Blenheim Pippin, and therefore conclude that it may not exceed some sixty to seventy years; but if no such bounds be set to the estimate, then the tree might be regarded as fully 150 years old, an estimate that is not far-fetched, seeing that these kitchen gardens have been in existence for over 300 years. The point naturally raised is this—Prior to the raising of the Blenheim Pippin, was there any variety in existence of which the former could have been a natural seedling and a reproduction? Seeing that from time to



FIG. 54.—ASPHODELINE ISTHMOCARPA: HEIGHT 5 FEET. (SEE P. 111.)

any other reader has obtained more than eleven individual flowers upon a spike, I am sending you on some with twelve, but you will see that they are not all open. We have had several spikes this season with twelve flowers on them, and the highest number has been fourteen. In regard to the number of flowers to one corm, we have counted thirty-eight, but that spike had three laterals. I enclose one spike which has developed four laterals. W. L., *Rood Ashton Gardens*. [Fine trusses of great strength. Ed.]

this the *Passiflora* had been planted, and it had covered the back wall and a portion of the roof of the house, rendering hard pruning necessary every winter. This plant flowered and set its fruit freely. The bright purple fruit was in much demand for dessert. I used occasionally to cut one open, and sucking it, enjoy the pleasant acid taste of its orange-coloured pulp. I have never since witnessed such a fine example as this, and I sometimes wonder if the specimen is still in existence. R. Dean.

time numerous Apples have been raised from seed that have proved to be mere reproductions of the parents, is this hypothesis in relation to the Blenheim Pippin an impossible one? *A. D.*

VENTILATING GLASSHOUSES.—I have on many occasions observed the way some young gardeners proceed to afford air to glasshouses, and my object in writing this note is to show that the methods of doing it is not always a safe one to follow. The man in charge makes it a rule to always consult the thermometer hanging in the house, and unless it indicates exactly 65°, 70°, or whatever the given maximum may be, they will not open a ventilator. Now I do not regard this as quite right, more especially for fruit-houses. The kind of thermometer I would advise him to watch is the sun, and the minute its rays touch a fruit-house roof, and rather before if possible, when the sky is clear, the upper ventilators should be opened a small space, gradually increasing it as the sun's rays cover the house. By following this method, which is always noticeable, the house has not the steamy look if ventilation be not afforded till the thermometer in the house registers the exact maximum figures. It will be noticed that when the sun has shone on a house for a period of two or three minutes, the temperature springs up nearly 10°, often before any one could reach the house, and such sudden increase of temperature has an injurious effect on Vines and other fruit. It is a judicious plan to shut the valve of the flow-pipe, which is generally done unless the weather is very fickle; then it is preferable to leave the valve wholly or partially open, thus ensuring a more uniform temperature with the ventilators opened. It is also a safe method with fruit-houses which face the east to leave a small space for air entering the house during the night in hot weather; for if a man is about soon after 5 A.M., by adhering to these rules, we should very rarely have scalded berries or shoots. *A. J. Long, Wyfold Court Gardens.* [We have our doubts about the position in the viuey or Peach-house of the thermometer. It may be right to hang an instrument 5 feet from the glass if we wished to ascertain the average temperature of the air in the house; but what we most need to know in spring and summer is the temperature of the air within a space of 1½ foot of the roof-glass. *Ed.*]

A PIER-HEAD ROSE SHOW.—The Southampton Horticultural Society seems to have an executive determined not to be overborne by difficulties. It is in that respect rather diverse from a similar society in London which seems to exist only to be the creature of a greater power. Last year seems to have seen the last, for the present, at least, of its long series of great general summer exhibitions, and that could be held only under adverse conditions, such as it needed immense energy to surmount. This year it has boldly resolved to take a different course, and will hold a grand Rose show on June 23 and 29 next, instead of the customary late summer exhibition. But the odd thing concerning this Rose-show is, that it will be held in a pavilion set up at the end of the pier. The spot is easy of access from steamboat-pier and railway-station, and the pier authorities have agreed to allow exhibitors and their exhibits to pass free of toll. That our great Rose growers will support it is naturally hoped, especially that Southampton hitherto has not seen the queen of flowers yet in all her regal beauty. *A. D.*

DEGENERATION OF ORCHIDS.—There is sound common sense in what Mr. de B. Crawshay has written anent this subject, and especially in his last paragraph, where he notes the fact that Orchids passed from hand to hand seldom benefit by the change. And no better proof of the truth of this can be adduced than the fact that in the majority of instances one sees of fine specimen plants up and down the country these are of easily grown kinds. Large specimens of *Coelogyne cristata*, *Dendrobium nobile*, and some of the more easily grown distichous-leaved kinds are common enough, though they may have changed hands a score of times, but let a fine plant of some of the more miffy subjects go from one collection to another, and deterioration soon sets in. Nor is this always the fault of the cultivator. There is not the least doubt that situation has a lot to do with the successful growth of certain kinds. In one garden I could grow *Vanda cœrulea* well, but I took the same specimen with me to a different part of the country, where new houses had been specially erected for them, and the plants went back from the first, and although I have tried them in various temperatures and had a fair amount of

success, the plants have never had the same vigour or produced such fine spikes as formerly. But speaking from one's own experience is not always to take a broad view of the subject, and it is sometimes instructive to note how plants thrive elsewhere. Anyone who has had charge of a large collection for a number of years knows well that in certain parts of a house certain plants thrive, and there one is careful to keep them. One knows well enough that the plants would not do so well in other places, though possibly he would be at a loss to say why. For this reason, although doubtless we cannot be too well informed of the conditions under which the plants grow naturally, it does not always do to follow these conditions exactly. For are not many kinds greatly improved under cultivation, and have we not sufficient evidence that Orchids deteriorate even in their own habitat? The amount of information given by interested collectors as to habitat, climate, and natural surroundings, has never, I am sure, done one-tenth of the good that the knowledge of the behaviour of the plants under cultivation disseminated through the gardening press by those who have studied this want has done, and, though glad to see such notes as that by Mr. Lowrie, who, by the way, is presumably not a collector, I think that cultivators now-a-days are able to hold their own with Orchids, as well as with any other family of plants. *H. R. Richards, Coldham Hall Gardens, Bury St. Edmunds.*

MARKET GARDENING.

ORCHARDS IN VICTORIA.

THE area now under orchards in Victoria amounts to 48,000 acres, and under Vines 36,000 acres. A very large area has been planted with Apples during the past three or four years, with varieties suitable for the British market, and a large export trade is expected when the new orchards are all in full bearing. The soil and climate are well suited to the production of almost every known variety of Apple and Pear. Fifteen months ago the Department of Agriculture forwarded to me fifty-five varieties of Apples, and fifty out of this number arrived here in excellent condition. The favourite varieties now being exported to London are New York Pippin (Cleopatras), Newtown Pippin, Ribston Pippin, Munro's Favourite, Baldwin, Alfriston, Bismarck, Jonathan, Adams' Pearmain, Five Crown Pippin, Dumelow's Seedling, Rome Beauty, and French Crab. Growers are very careful in grading and packing their fruit, and have studied all details in connection with the requirements of the London market. A large quantity of Victorian fruit is sold by retail shops as Tasmanian, that colony being the first to commence the export trade.

Of Pears, Winter Nelis, Vicar of Winkfield, and Broompark have stood carriage to this country better than other varieties.

A fair quantity of Grapes, chiefly Waltham Cross, Muscat of Alexandria, Almeria, and Doradilla, arrived last season. A considerable increase in exports of Apples, Pears, and Grapes is expected to take place this season, also some shipments of Apricot and Raspberry pulp. The *Cuzeo* will bring the first shipment of fruit this season, and will leave Melbourne on February 22. *J. M. Sinclair.*

CROPS IN THE OPEN.

(Continued from p. 103.)

PEAS are a good paying crop, and the earlier green Peas are put on the market the more profitable are the returns. Therefore, land which is to carry a Pea-crop, should have a good dressing of decayed manure ploughed into it, and be well harrowed, and, if lumpy, rolled and harrowed again, so as to pulverize the earth before drilling in the Peas with a machine, say at from 1½ to 2½ feet from drill to drill, according to the height which the Peas sown attain under generous cultivation. Lightning is the best early Pea that I am acquainted with, a prodigious bearer of well filled pods, containing white, round Peas of fine flavour, the haulm attaining a height of 2½ feet. Last year I sowed Lightning, Tom Thumb, and First Crop the same day in the furrows of unharrowed ploughed land, and noted the results, which were in

every respect in favour of Lightning. A sowing of Daisy (1½ ft. high) made the same time as the above-mentioned variety, would make a capital succession to it, and the large handsome pods being well filled with marrowfat Peas of fine size and quality, will realise top prices in June and the early part of July. In growing Peas for market, the items of expense incurred are, the cost of preparing the land, sowing, cost of seed, and taking the crop as soon as it is ready, and sending it to market; pea-sticks for support being dispensed with. Successional sowings of dwarf-growing marrowfats should be made at intervals of a week or so from this date onwards to the middle or end of May. As soon as the ground is cleared of the Peas, it should be prepared for and cropped with Lettuce, Spinach, Cabbage, Cauliflower, Brussels Sprouts, Broccoli, Scotch Kale, and such like, bearing in mind that every day that a portion of the land remains uncropped, represents money out of pocket.

Lettuce is an other paying crop when well attended to; doing well in light rather than heavy soils of average depth and fertility. Roughly estimating, one acre will yield 14,520 properly developed heads of Lettuce grown at one foot a part, and which (in the case of autumn-raised plants) being ready for market from the middle or end of May, will command a wholesale price of about one shilling per dozen—£60 10s, and putting the price for succeeding crops of this salad plant during the remainder of the year at the low price of ninepence per dozen, would amount to £45 7s. 6d., thus making a total of £105 17s. 6d. per acre for two crops of Lettuce in one year, out of which a good balance would remain on the right side after all expenses had been deducted therefrom.

Cauliflowers command a ready sale throughout the year. Dwarf compact growing varieties planted out early in March, at sixteen inches apart each way, would in round numbers give 907 dozen heads to the acre, fit for marketing three months later, and which at the moderate wholesale price of two shillings per dozen, would be £90 14s. 0d. *H. W. Ward, Rayleigh.*

(To be continued.)

LAW NOTE.

COURT OF APPEAL.

(Before LORD JUSTICE A. L. SMITH, LORD JUSTICE CHITTY, and LORD JUSTICE COLLINS.)

ASHWORTH v. WELLS

FEB. 14.—This was an appeal from an order of a DIVISIONAL COURT (Mr. Justice Day and Mr. Justice Lawrence) on an appeal from the MANCHESTER COUNTY COURT, reported in 14 *Times* Law Reports, 170. The plaintiff, an amateur Orchid grower, bought an Orchid at a sale of the defendant's collection of Orchids in June, 1895. It was warranted by the defendant as a "*Cattleya Aclandiae* alba, seven bulbs and three leaves, the only known plant," and it was knocked down to the plaintiff for 20 guineas. It had never flowered while in possession of the defendant, and it turned out after two years' cultivation by the plaintiff to be not an alba or white *Cattleya*, but the ordinary purple one, which was worth only 7s. 6d. The plaintiff having brought this action for damages, the defendant admitted liability, and paid into Court £23 2s. The County Court Judge held that if the plant had been an alba it would have been worth more than £50 at the time of the sale, but that until it showed its real nature, there was no probability that any Orchid-grower would give more than 20 guineas for it. He thought that the sum paid in was enough, and gave judgment for the defendant. The Divisional Court thought that the case ought to be tried again, and sent it back to the County Court Judge. The defendant appealed.

LORD JUSTICE A. L. SMITH said that, in his opinion, judgment ought to be entered for the plaintiff for £50. There had been a public sale by auction of a collection of Orchids belonging to the defendant. It was admitted by the defendant that one of the entries in the catalogue constituted a warranty with regard to a certain Orchid. It was as follows:—"*Cattleya Aclandiae* alba, seven bulbs and three leaves, only known plant." The purple *Cattleya* was a common plant; the white *Cattleya* was exceedingly rare, or, rather, if the title was correct, unknown. The plaintiff attended the sale and bought this Orchid on the faith of the warranty, for 20 guineas. If it was purple it was only worth 7s. 6d. Now what was the nature of the warranty? In his judgment, according to the true reading of the clause in the catalogue, it was a warranty by the defendant that this Orchid, when it flowered, would flower white. There was no warranty that it would flower, or even that it would live. The plaintiff therefore had to wait the ordinary course of events for the plant to flower, and in two years' time it did

flower, not, however, according to the warranty, but it flowered purple. The plaintiff complained that there had been a breach of the warranty, and brought this action in the County Court for £50. The defendant paid into Court the sum of 20 guineas, the price which the plaintiff had paid for the Orchid, and a sum of 2 guineas for interest, and a further small sum to cover the costs of the plaintiff. The real question in the case was whether the plaintiff was in law entitled to any damages beyond the 20 guineas which he had paid for the plant on the faith of the warranty. The County Court Judge thought that the plaintiff was not entitled to any further damages, and he gave judgment for the defendant on the ground that the sum which he had paid into Court was sufficient to satisfy the plaintiff's claim.

The Divisional Court had made an order that the case should be sent back for a new trial. In his opinion it should go back for a new trial, but judgment should be entered for the plaintiff for £50. At the trial there had been abundant evidence, which was uncontradicted, that the Orchid, if it was white, was worth 100 guineas. But no one could possibly tell at the time of the sale whether it was white or not. The plaintiff had to wait to find that out, and after waiting he found that the warranty was broken.

Under those circumstances, What were the damages to which the plaintiff was entitled? It was said that he was only entitled to such damages as he could show that he had suffered at the time when the article was delivered. In the great majority of cases that was the proper rule, the market value being the chief factor to be considered. But the plaintiff in this case was, in his opinion, entitled to prove that he had suffered special damages, and he might wait a reasonable time to see what those damages were. This Orchid could not properly be said to have any market value at all. The County Court Judge found as a fact that, if it was an albino, it was at the time of the sale worth more than £50. The evidence showed that it would have been worth more than £100, but with regard to the jurisdiction of the County Court, it was sufficient to say it was worth more than £50. That finding seemed to him to dispose of the case, and he thought that the County Court Judge ought thereupon to have given judgment for the plaintiff for £50. But he went on, and proceeded to find further that until the plant showed its real nature, there was no probability that any Orchid grower would give more than 20 guineas for it.

He thought that the County Court Judge, in coming to this further finding, had misdirected himself. The warranty was that, when the plant flowered, it would flower white. The plaintiff was entitled to wait until it did flower, which did not happen for two years, and it was a mistake to say, when it did flower and the warranty proved to be broken, that the measure of damages was to be regulated by what the plaintiff had given for the plant two years before. The price which he gave was no criterion of the loss which he sustained. In his opinion, therefore, the appeal failed, and judgment must be entered as he had stated.

Lord Justice CURRY said it had been argued that the only damages which had been sustained were represented by the difference between the value of the plant at the time of the sale and what would have been its value if it had answered to the warranty at the time of the sale. He thought that this was not a case in which that general principle could be applied. This was a special kind of warranty, and in his opinion the plaintiff had shown special damage. He thought that the first part of the finding of the County Court Judge settled the question, and that what followed gave rise to the difficulty which had been felt in the case. The plaintiff could not bring his action until he had ascertained that the Orchid bore a purple flower. He therefore agreed with the judgment which had been delivered by Lord Justice A. L. Smith.

Lord Justice COLLINS said he agreed in the main with his learned brethren, but he felt some difficulty in coming to the conclusion that the County Court Judge, in whose hands the question of damages rested, and who had found £20 to be the sum to which the plaintiff was entitled, had misdirected himself. The general principle seemed clear enough—that in cases of breach of warranty the measure of damages was the difference between the contract price of the thing sold with the warranty and the market price or real value if it could be ascertained, and any special damages following from the buyer acting on the warranty might be added. Here the action seemed to be between the value of the plant with the contingency that it might flower and the value of the plant when it had flowered. If the County Court Judge meant that, and came to the conclusion that the true value of the plant with that uncertainty was no more than the money paid into Court, he felt a difficulty in saying that he was wrong. But he was satisfied that they were not giving the plaintiff too much, and he would not differ from the judgments which had been delivered. *Times*.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

FEBRUARY 9.—Present: Dr. M. T. Masters, in the chair; Rev. W. Wilks, Mr. Bennett-Poë, Mr. McLachlan, Mr. Veitch, Rev. G. H. Engleheart, Mr. Sutton, Mr. Shea, Mr. Douglas, Mr. Michael, and Rev. Prof. Benslow, Hon. Sec. *Evolution Committee of the Royal Society*.—Mr. Bateson, one of a deputation to the Society, from the Royal Society, called

attention to the existence of the Evolution Committee of the Royal Society, the object of which is to promote accurate observations of facts relating to variation, heredity, selection, and other phenomena connected with the evolution of plants and animals. A horticultural sub-committee has been appointed to further the above objects, in the hope that any persons engaged in practical horticulture may be willing to assist the committee by communicating the results obtained, and allowing their operations to be observed and recorded. The Secretary of the Scientific Committee will be glad to receive any communications.

Currant Mite.—Mr. Berry gave an interesting account of the history and progress of this destructive injury, especially to Black Currants in Kent. It was first observed some ten years ago, but has now reached alarming dimensions. Miss Ormerod recommended picking off and destroying the buds infested with the mite (*Phytoptus ribis*), the cause of the complaint. This was done, but last year a sudden development occurred, when picking became useless. The "Baldwin," a very heavy cropper, was the variety most seriously attacked. The "Red Budded Naples" were only slightly affected, but this variety is not a heavy cropper, and the fruit being more readily shed, it is not so useful as the Baldwin for market purposes. Mr. Berry suggested that experiments might be carried out at Chiswick to discover which was the most resisting variety, as was done with other plants in Victoria in the Horticultural Gardens, so as to aid the fruit industry in Australia.

Mr. McLachlan gave some account of the general habits of the *Phytoptus*, remarking that this species was first noticed by Westwood some thirty years ago. It is nearly legless, and lives inside the bud, consequently it is very difficult to reach by means of insecticides. He could only recommend hand-picking, unless a mite-proof variety could be found, as they had raised more or less *Phylloxera*-proof Vines.

Mr. Michael also contributed further details, observing that all the species of *Phytoptus* were parasites, and that while many species might attack the same plant, a single species might also live on many kinds. They were excessively minute, possessing only two pairs of legs instead of eight, and always protect themselves, so that it becomes a very difficult matter to reach them, as, e.g., in the curled-up edges of leaves, and within buds. It had been found that kerosene emulsion continuously applied by spraying had been more or less effective against *P. pyri*, but acari are far less sensitive to chemicals than insects. The eggs especially have a dense cuticle, so as to render it quite impervious to chemical action of insecticides. The only chance was to repeat the process of spraying, and catch the successive broods. The only thing absolutely fatal to acarus life was boiling-water; eggs and all were destroyed at once.

Mr. Berry, in replying, observed that the remedy hitherto suggested of cutting down the shoots of the Currant bushes attacked was quite useless. Mr. Veitch suggested that analysis of the branches of the varieties affected or otherwise might reveal some differences, but Mr. Wilks expressed himself as very doubtful of any appreciable differences being attainable even if they exist. Mr. Engleheart raised the question as to whether the Baldwin variety was weaker than others through over-propagation, but Mr. Michael added that *Phytoptus* do not by any means prefer weaker plants, but are found more usually on perfectly healthy ones.

[The first mention was in our columns on April 16, 1864. In 1869, March 13, and March 27, further articles were published; and on August 7, 1869, p. 841, the late Professor Westwood gave a full description and illustration of the pest. He there mentions having observed it during the previous five years mostly on specimens coming from Scotland, &c.]

Carnations and Caterpillars.—Mr. Douglas exhibited some grubs received from Mr. White, Wateringbury, Kent, but the species was not readily determinable without being bred to the imago stage. It was suggested that gas-lime should be used, as for wireworm, to destroy them.

Pines, Disease.—Specimens of Scotch Fir and of *Abies Nordmanniana* were received from Mrs. Marshall, Skelwith Fold, Ambleside, the former attacked by the Pine-beetle, the latter by *Chermes abietis*. This insect has always proved to be very fatal to this species of *Abies*, and the only suggestion that could be made was to cut down the tree and burn all parts attacked. With regard to the Pine-beetle, to encourage the multiplication of insectivorous birds as far as possible might be advantageous.

Cypripedium with Fungus.—Mr. Douglas exhibited specimens with the roots badly infested by a mycelium. Mr. Veitch at once recognised it as the result of a too damp atmosphere, recording the fact that having on one occasion to make a double roof, it caused so much damp that he lost many Orchids from the same cause, but on improving the atmosphere this completely prevented any recurrence of the fungus.

Primula obconica ♀ × *sinensis*.—Mr. Shea showed a hybrid raised between these species. The flowers were pink, showing the extension of yellow from the throat, with curled petals, and bearing a decided scent of *sinensis*. The calyx, however, was entirely that of *obconica*. The general appearance was nearer that of the female parent. Mr. Shea proposes to re-cross with *sinensis*, and so intensify the features of the male parent.

Two-spotted Arum.—A fine example of this very common condition was received from Mr. Thomas Bennett, The Gardens, Shavington Hall, Market Drayton.

CHIPPENHAM & CALNE HORTICULTURAL.

FEBRUARY 7.—The annual general meeting was held on the 7th inst., and was well attended. The Secretary's report gave particulars of an income of £470 15s. 7d., including a balance brought forward of £123 19s. 6d. Gate-money and subscriptions amounted to £253, and royalties £78. The expenditure was £330, of which nearly £150 was paid in prizes. The substantial balance of £140 15s. 5d. remains in favour of the society. Major Brinkworth moved the adoption of the report and balance-sheet. On the motion of Mr. Gardner, seconded by Mr. Perkins, it was unanimously agreed to ask H. H. Prince Hatzfeldt, of Draycott Park, to accept the office of President for the ensuing year.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

FEBRUARY 7.—On Monday, Mr. Powell, foreman at Park Place Gardens, Henley-on-Thames, read a paper before a crowded attendance of members, presided over by the President, Mr. C. B. Stevens, in the club-room, British Workman.

After dealing with the varieties most suitable for the outdoor rockery, the greenhouse and stove, and the soils best adapted for their successful culture, he impressed upon the younger members in particular the great advantage and pleasure derived from making a study of the various classes of Ferns, especially in the drying and mounting of specimens in books, which would in after years be a source of profit and assistance. At the request of the lecturer, Mr. Stanton made some very interesting remarks respecting the various varieties, the growth of the spores, and the fertilisation of Ferns, illustrating his remarks by dried specimens of Crested Ferns; Ferns with distinct fertile and barren fronds; Ferns showing the various kinds of spore arrangements whereby botanists were able to determine the genera and species of the family; specimens of peculiar interest such as the gold, silver, variegated and transparent varieties, some of which the speaker had collected thirty-seven years ago. A discussion took place, bearing chiefly on the culture of *Adiantum Farleyense*, in which Messrs. Martio, Turton, Woolford, Neve, Phipps, Bright, Tunbridge, &c., took part.

NEWCASTLE AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.

FEBRUARY 8.—The monthly meeting of this Society was held at their room, 25, Westgate Road, on the above date. Mr. JOHN BULLOCK presided over a large attendance of members.

The prize for the best pots of Hyacinths and Narcissus was won by Mr. M. LARKE, North Dene, Gateshead; and a Special Certificate was awarded to the Secretary, J. Elliot, Junr., for a plant of *Cypripedium villosum*, carrying thirty blooms. Among the other exhibits on the table was a splendid dish of Sutton's A1 Tomato shown by Mr. HAYES, Farnside, Gateshead.

Mr. J. NICHOLSON, Gosforth, read a practical paper on the Tomato, embracing its general cultivation, and dealing especially with the numerous diseases, principally fungi, which affect the plant. The paper was followed by a discussion, in which many took part. Votes of thanks to Mr. NICHOLSON, and the Chairman concluded the meeting.

DEVON AND EXETER GARDENERS.

FEBRUARY 9.—A numerous gathering of the members of the above Society took place at Exeter, on the occasion of a lecture given by Mr. F. W. E. SHREVELL, F.L.S., of Tonbridge, Kent, entitled "Four years' experiments in the cultivation of vegetables, with and without the use of chemicals." We will afford our readers the substance of this lecture in an early issue of the *Gardeners' Chronicle*.

ROYAL BOTANIC.

FEBRUARY 12.—A meeting of the Fellows was held on the above date in the Museum at the Royal Botanic Gardens, Regent's Park, Mr. C. BRINSLEY MARLAY presiding. Prince and Princess Adolphus of Teck were nominated for Fellowship.

The Chairman, in referring to these nominations, said that the late Duchess of Teck had probably done more for the Society than any other person. Not only had she done much to increase the Society's funds, but she had also graciously given her patronage and help to their shows. He feared that the Duke of Teck was in very indifferent health, and he did not know whether he would continue to be the President of the Society, but it was very gratifying that his son and daughter-in-law were about to become Fellows.

Mr. Sowerby, the Secretary, read the first part of a paper on "Fibre Plants," illustrated by exhibits of raw and manufactured products.

HORSFORTH GARDENERS' MUTUAL IMPROVEMENT.

FEBRUARY 14.—A lecture was given on Monday evening (in a large room at the King's Arms Hotel, Horsforth) by Mr. W.

A. CLARK (of Messrs. Backhouse & Sons, Nurserymen, York), who took for his subject, "A Ramble through the Lak District;" illustrated by lime-light views.

The lecture was of an instructive character. All the principal mountains and lakes in Westmoreland and Cumberland were illustrated, different sections of the mountains inhabited by plants of various species being shown. The meeting was well attended by gardeners from different parts of Yorkshire.

NOTICES TO CORRESPONDENTS.

ABIES EICHLERI: J. McL. This is a synonym of *Abies Veitchii*, a native of the mountains of Japan up to 2000 feet. It reaches a height, under favourable conditions, of 100 feet.

ADMISSION OF YOUNG GARDENERS TO KEW: W. O. A. You will find all necessary information on p. 56 of our issue for January 22 this year.

APPLICANTS FOR A SITUATION AT KEW: A. C. The form meant to be filled up is not that published in the *Gardeners' Chronicle* on Jan. 22, but a similar one that will be sent from Kew on application.

BOOKS: Hortus. The New Practical Gardener or Modern Horticulturist, by Jas. Anderson, not "Henderson," was published in 1872, by W. Mackenzie, 22, Paternoster Row, London, and Glasgow, Edinburgh, and Dublin. There is no recent work on table decoration; but you might pick up Miss A. Hassard's on a book-stall.

CARNATION CUTTINGS: A. B. M. The cuttings are altogether too weakly, and it will be necessary to secure stronger ones. They should be prepared much the same as you would prepare a *Pelargonium* cutting. The bottom-heat you mention is suitable, but the atmospheric heat should not exceed 70°. The best book upon the subject is *The Carnation Manual*, a cheap and useful book, published by Cassell & Co., Ltd.

CUCUMBER ROOTS: T. E. B. The roots are very badly infested with eel-worm (*Tylenchus*), for which there is no cure. You should clear out the whole soil and char it, or bury deeply in the garden, and make a new start with soil from a fresh quarter, and, if possible, fresh plants also.

DAPHNE INDICA: Amateur. All the members of the family *Thymeleae* have very tender rind, and the cuttings must be afforded water very moderately, more particularly as the leaves readily decay. The water should be poured around the edge of the pot. The best sort of rooting materials are sandy peat with a layer of pure sand on the top, or a sand-bed simply. If peat be used, it should not be pressed very firm, or there will be too much moisture for the good of the cuttings; and the crocks, broken finely, should occupy a quarter of the depth of the pot. The shoots selected for cuttings should be tolerably firm, especially the base, therefore one-year-old wood forms the best cuttings. The leaves should be removed from a cutting to the extent of one-third its length. *D. indica* strikes best in March in a warmth of 58° to 60°, and moderate bottom-heat, under a bell-glass. If grafting be desired, stocks of *D. pontica*, *D. Gnidia*, *D. Cneorum*, *D. laureola*, or *D. Mezereum*, should be raised from seeds sown in the autumn (those of *laureola* are very poisonous), or from cuttings taken in the autumn when mature, and struck under bell-glasses, in a temperature of 50°, placing those that have formed a callus into greater warmth in the spring, to foster the production of roots. The stocks thus raised may be used after they have been grown for one year in pots. Seedlings will scarcely be fit to make stocks before the third year. Grafting should be performed with ripe wood, low down on the stocks, in either spring or early autumn, using grafting-wax to cover the point of union, the grafted stocks being kept in a close case in a temperature of 55° to 58°.

FARM-YARD MANURE: Ignoramus. The creatures seen in the dung are a false wireworm or millipede—*Julus guttatus*, which do not feed on living tissues, but on what is decaying. They will do no harm but rather good, as the myriad bodies in decaying, furnish additional plant food. The manure itself should be stored in a shed, and thus be made drier than the sample sent, so that it may be crumbled or sifted the more readily to mix with the soil.

MANURE, HOME-MADE: Ignoramus. The wood-ashes will afford potash, the pigeon's dung is rich in nitrogen, but it is apt to injure the roots of plants,

unless present in small proportion; the bones should not be burnt, as that turns them into bone-ash, an almost valueless article as plant-food. You should boil the bones till the grease is removed, and no longer. They then may be crushed or milled, or disintegrated by pouring sulphuric acid upon them, or leached in a tub by putting bones and wood-ashes in alternate layers, and leaving it exposed to the weather. You would find the *Moule "Earth-closet"* a valuable adjunct to the garden, also house-slops, soap-suds, fowls and pig-dung, &c. Soot is a better manure than charcoal, containing as it does a good deal of ammonia. For pot-plants, horse and sheep's-dung soaked in water, hanging a bagful of fresh soot in the tank or tub, makes a capital liquid-manure.

MARKET GARDENERS' COMPENSATION ACT, 1895: R. H. A copy of this Act can be purchased at Messrs. Eyre & Spottiswoode, Queen's Printers, East Harding Street, London, E.C.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—*W. T. N. Yorks.* It is impossible to do anything but guess at the names of some of the things you send, the specimens being only imperfect scraps. 1, may be *Strobilanthes Dyerianus*, but the colour has dried out; 2, *Adiantum Farleyense*; 3, *Gymnogramma ochracea*; 4, *Asparagus plumosus*; 5, too small—send in flower, or mature specimen; 6, a scrap of *Polypodium aureum*, probably.—*F. Arnold Lees.* *Canagire* is the produce of *Rumex hymenosepalus*. It is used in tanning leather.—*Anstie.* 1, *Cupressus (Retinospora) pisifera*; 2, *Juniperus chinensis*; 3, *Cryptomeria japonica*; 4, *Cupressus torulosa* var. *majestica*; 5, *Libocedrus decurrens*; 6, *Juniperus Virginiana* var.; 7, the true *Thuja plicata*, commonly called *Lobbi*, or *gigantea*; 8, *Pinus*, next week; send cone, if possible.—*C. J. R.* The flower of *Cattleya Trianae Williamsii* is of a very fine variety indeed.—*W. S.* 1, *Brassavola Perrini*; 2, *Odonoglossum pulchellum*; 3, *Adiantum reniforme*.—*J. P. K.* 1, *Miltonia Russelliana*; 2, *Epidendrum virens*.—*G. T. R.* The Fern is *Scolopendrium vulgare crispum*; the other plant *Statice profusa*.—*W. D.* 1, *Polygala Dalmatensis*; 2, *Salvia coccinea*; 3, *Echeveria retusa*; 4, *Lastrea Standishi*; 5, *Anthericum lineare variegatum*; 6, *Davallia platyphylla*.—*A. B. Neubury.* 1, *Ligustrum lucidum*; 2, *Picea nigra*, probably; 3, *Tsuga canadensis*; 4, *Cupressus Lawsoniana*; 5, *Thuja orientalis* variety; 6, *Pinus excelsa*.—*C. B.* *Cypripedium insignis*.—*Ignoramus.* *Cypripedium insignis*.—*D. W.* *Thuja dolabrata* var. *laevis-virens*.—*J. W.* 1, *Scilla bifolia*; 2, *Heuchera*, we cannot tell the species; 3, *Ruscus aculeatus*; 4, *Begonia echinosepala*; 5, *Selaginella Martensii*; 6, *Rhododendron dauricum*.—*C. B.* Materials insufficient.

ORCHIDS ON THE BORDERLAND OF BURMA AND CHINA. C. Luxton. *Anthogonium*, 1 sp.; *Acampe*, *Cypripedium*, several sp.; *Ornithochilus*, *Phalaenopsis*, *Trichosma*, *Thelasis*, *Taiuia*, *Uncifera*, *Sunipia*, and *Dendrobium*. See *Hooker's Flora of British India*, the vol. referring to Orchids.

PANCRATIUM: C. B. W. & Co. The one generally grown is *P. fragrans*, the correct name for which is *Hymenocallis ovata*. The bulbs should be potted singly into 6 or 7-inch pots, according to their size, or several together in larger pots. A compost of half loam and half leaf-soil, with the addition of a fair amount of silver-sand, will suit them, but if convenient, it is better to substitute peat for one-half of the leaf-soil. The plants will remain perfectly healthy, and flower profusely in the same pots for several seasons, providing they are given supplies of liquid or chemical manure. In fact, it is a great mistake to frequently move them. Give plenty of water, heat, and feeding when the plants are growing; but less of either will suffice afterwards. This species is a stove plant, and may be easily propagated by means of offsets, or by seeds.

RENT-PAYER PEA: J. M. In reference to the enquiry inserted in last week's issue of the *Gardeners' Chronicle*, Mr. R. G. Mechie, gr., Beechwood, Fallowfield, writes, that the variety was sent out by Mr. H. Brownhall, nurseryman, Sale, Manchester.

TENNIS COURT: A. R. A tennis court for a three or four-handed game should be 78 feet long and 36 wide. First draw this oblong right-angled figure. Then 4½ feet within the side lines draw two "service" side lines 42 feet long, and connect the ends with two other lines, which will be 27 feet long. Then divide equally the length and breadth of the inner square with two other lines.

THE ZERO OR 0 POINT ON THE THERMOMETER: S. P. The 0 on the absurd Fahrenheit thermometer is 32° below the point at which water freezes at the sea-level. In the Réaumur and Centigrade scales the 0 point is, on the contrary, the freezing-point of water, warmth being recognised by degrees above, and cold by degrees below 0; hence it is easy to know by affixing the plus +, or minus — sign to a degree what is meant—for example, + 12 on the Réaumur, or + 15 on the Centigrade scale are equal to 59° on the Fahrenheit scale. The Fahrenheit zero, or 0, = on a Réaumur scale — 14°, and on a Centigrade — 18°. The only advantage that a Fahrenheit thermometer has to offer is the smaller divisions of the scale, which for garden purposes are of no practical use. It should be replaced gradually by the sensible centigrade!

TULIP CHRYSOLORA WITH AN UNUSUAL NUMBER OF FLOWERS: D. Chaplin. The reasons for the fasciation of two flower-shafts that spring from the parent bulb, and the flowering of the offset which in the usual course would not have produced a flower till next year, are uncertain. It is probably due to extra vigour imparted by very favourable conditions during the formation of the bloom last year, helped by similar conditions this season. The leaves show no evidence, however, of this.

TULIPS FAILING TO FLOWER FREELY: R. A. There appears to be something in your soil detrimental to the roots, as part of these are decayed, and the rest weak. The fact that the bulbs are sound and good, also points to the failure being due to some detail in the cultivation that we are unable to specify.

VIOLETS FAILING: A. B. The plant sent is evidently considerably more than one year old, and therefore unsuitable for early frame work. We remark the coarse strong runners, made last year, which should not have been allowed to develop, are still on the plant. You do not say so, but it seems to us that you are trying to obtain flowers from aged plants lifted in the autumn, which, unlike young ones raised from off-sets taken last April, resent disturbance late in the year. A properly prepared plant grown in a half shady spot in good soil, and kept quite free from runners will lift in September or early October with the root-mass intact, and will scarcely feel removal. Whereas old plants, owing to the much wider ramification of their roots, can scarcely be removed without feeling the operation.

WEIGHT OF A CROP OF TOMATOS: C. B. W. If a plant under glass be kept to one stem it may, if early planted, carry during the summer months from 12 to 15 lb. of fruit. We have had plants trained fan-shaped on a south wall outside which produced thrice that weight. Too much importance is given to the one-stemmed fashion of growing the plants. It may in a general way suit plants grown in smallish pots or out in the open quarter; but against warm walls and on trellises under glass fuller development of the branches, and less mutilation of the plants, seems to be the better practice.

WHAT FOLLOWS A FOREST FIRE IN CANADA AND U.S.A.: Mac. The reason that hard-wood trees come up on land previously covered with coniferous trees may be due to the fact that such woods act as traps to the seeds that are capable of being transported by the wind (winged seeds), which, falling to the ground among the firs, germinate in numerous instances, but, owing to the dense shade, seldom make trees. The destruction of the firs by fire gives the seed and the seedlings that escape destruction a chance of germinating and growing. Of course, a seedling hard-wood tree, not destroyed down to the root, would spring up again, and perhaps with renewed vigour, as witness the familiar example of cutting-back seedling Apple and Pear stocks in a nursery. The heat arising from a forest fire acting on the seeds laying in moist leaf-mould, may, moreover, exercise a stimulating effect on seeds that, although not freshly fallen, retain their vitality. We know that old seed will vegetate under favourable conditions of heat and moisture which without this stimulation, would fail to germinate.

COMMUNICATIONS RECEIVED.—H. W. A.—G. S. M., Chester.—Toogood & Sons—F. W.—L. L., Brussels.—W. B.—R. D.—F. B.—G. G., Paris.—C. H. P.—C. B.—D. R. W.—E. Broadway, Grenada, letter forwarded as requested.—H. C. W.—J. A.—D. T. F.—R. D.—Novice, Chadwell Heath.—D. P.—P. W. (too late).—J. P.—D. R. W.—E. S., Woking.—H. T.—W. A. C.—Cornubian.—J. O'B.—C. H.—A. P.—C. T. D.—J. Shaw.—Mertens & Co.—J. S.—A. L. T.

(For Markets and Weather see p. xiii.)



THE

Gardeners' Chronicle.

SATURDAY, FEBRUARY 26, 1898.

WALMER CASTLE.

THERE are few finer views to be had along the range of the Kentish coast than those afforded during a ramble through the policies of Walmer Castle and its delightful surroundings. The site whereon the castle stands is sheltered on all sides save the front, which faces the sea and the French coast, by thickly studded trees. It is only separated from the seashore by a natural bulwark of shingle and a belt of roadway. The sea and landscape from here are both glorious. When the winds blow high, as they so often do, and the sea is consequently rough, one may at such times count a hundred ships or more anchored in the Downs. In a few hours, early next morning say, look again and they have all vanished, gone on their several interrupted ways. Enough, however, has been written by others of this prospect, and the castle too; our present purpose is with the gardens mainly, for of these we had often heard favourable mention made—so taking advantage of a short stay last autumn at St. Margaret's Bay, itself a lovely spot, we walked over thence along the cliffs, and through Kingsdown, to see for ourselves. The castle comes suddenly into view on reaching the asphalted parade in front, for it is completely hidden from view by the surrounding, until one does so; then it affords what has aptly been termed the brightest piece of landscape in England within an equal distance of the sea. At night, by the light of the moon, no enchanted castle certainly could look more dream-like and romantic.

Turning into an avenue from the roadway, we soon arrive at the garden entrance, near the castle porch. Ringing the bell at this gateway, the reverberation of which startlingly breaks the stillness reigning around, we pass through from the outer world into the first garden, the appearance of which, to our thinking, is singularly suggestive of one belonging to an old monastery or convent of times long gone by. The walls are high, and on the far side there is a thickly-trellised arbour running its length, which one might be excused for taking for cloisters. Indeed, surprise would hardly have been excited had a portly monk of the middle ages advanced to act as guide instead of the smart young gardener who came smilingly forward. This garden teems with all the conventional flowers which find a place in floral calendars, but their enumeration would hardly be of interest, as there is nothing of a very rare kind. The walls showed goodly crops of fine Marie Louise Pears, as did also the espalier-trained trees bordering the pallsade of Apples. The arbours were covered with Roses, and here Gloire de Dijon struggles for supremacy with Maréchal Niel, and the blushing La France, the effect in the season being particularly fine, the last-named attaining to an extreme perfection. This garden

is hardly an acre in extent, but it is only one of several, and we proceed on our way across a grassy plot whereon stands a large Tulip-tree (*Liriodendron tulipifera*) planted by William Pitt when Lord Warden. This tree is covered in most summers with its yellow Tulip-like flowers. Mr. Pitt also planted in the grounds a row of Sycamore and Lime-trees. This spot is of historic interest as being the place where, in the company of Lord Nelson, those grand naval operations were planned and thought out by the two, which resulted in such brilliant successes. In the far corner of the garden we are entering stands the Weeping Willow, an off-shoot of the one which overshadows the great Napoleon's tomb at St. Helena, planted here, in memoriam, by his conqueror, Arthur, Duke of Wellington. From its situation the sun's rays do not often illumine the spot, which has been well chosen for such a memento. When the Duke was Lord Warden, he made great alterations both at the castle and in the grounds, converting what had hitherto been but a gloomy fortress into a comfortable and habitable dwelling. Of course, we have all heard of his plain little bedroom here, like the one at Apsley House, with its simple iron bedstead and hard mattress, fitted only for a warrior; and also his favourite walk on the ramparts, where he was to be seen every morning early. The rooms at Walmer are all small, and royalty, or any great house-party, could not be conveniently entertained there. The Duke has left other evidences of his tenancy in the shape of trees planted by him—Figs and others—in various parts.

We soon arrive at the broad walk, as it is appropriately termed, and this is evidently, in the opinion of our guide, the *pièce de résistance* of his domain, for he dwells proudly on its description. It runs from the base of the steps descending from the terrace for about a hundred yards, leading to the large lawn for tennis or croquet, out into the park grounds. From this walk, as well as from the terrace above, a lovely sylvan view, ending in a picturesque glade, is obtainable. Deep flower-beds run the entire length on each side, bounded by high-trimmed Myrtle hedges. It is pleasing to hear that Lord Salisbury is very fond of flowers, and that many of the gardening operations are directed by the Marchioness herself. The arrangement of this walk is entirely her conception, and she prefers, as is seen, the old or variegated style of growing in preference to that adopted by many of the horticultural experts of the present day—the growing in masses of the same plant. Passing on, we get a glimpse at the bed of the moat, which is partly utilised as a kitchen garden, the portion in front forming a large Strawberry-bed—the fruit comes to hand early here, the spot being very sheltered. Then we see the viney, the Tomato-houses, and a small fernery; another garden, on the opposite side, similar to the first, and our inspection draws to a close. There is a tall Acacia-tree standing here, the top of the trunk of which is withered, as if struck by lightning, which was planted by Queen Elizabeth when she came to visit her father's castles; and Henry VIII. himself planted near by a Fig-tree, which is still in full vigour, and bears heavy crops. He built Walmer, Deal, and Sandown among other castles, and skilfully fortified posts on the Kentish coast in the early years of his reign, when, with his fleets and his armies, he proved such a powerful foe to Francis I., his royal cousin, and the French nation. Great is the pity that so highly endowed and gallant a monarch should

in later life degenerate so as to be remembered for the evil he committed rather than by the grand work he did. The erection of these castles alone and their fortification are recording monuments of military genius. Pondering on many events which the mention of his name brings to mind, we take our leave, thanking the young gardener, Mr. Dales, for his civility and information. Emerging from the precincts, Walmer village and church are discernible through the trees nestling on an eminence in the rear. There is a number of fine mansions dotting the country around. One can easily fancy it a fitting neighbourhood for retired military and naval heroes, who, we understand, form many of its inhabitants. The morning is beautifully clear, and it is with some surprise we hear a fog-horn sounding from out at sea. A large liner is passing in the offing, and it seems a director of the company to which it belongs resides in one of the mansions just alluded to. The siren of this vessel is sounding him a salute in passing, which it appears the ships of that company always do. A squad of the red Marines is being drilled in front of the Castle, and a number of the Marine Artillery are practising the bugle-calls and the drum-beats down on the beach. A couple of young artists, foreigners apparently, are sketching the Castle and landscape, exciting the interest of the passers-by, who stop and critically look on. We sit down on a bench near by to indite these hasty notes, but happily are left alone to indulge in meditation fancy free by the sea waves. *Norman Brown.*

NEW OR NOTEWORTHY PLANTS.

DEUTZIA CORYMBIFLORA.

THIS new shrub, found in Ise-Tchuen (China), by the Abbé Farges, and introduced into France by M. Maurice de Vilmorin, is a plant with rather slender branches; the year's stems erect, round, with a lenticellate bark, rather long internodes, leaves large, almost sessile or with a petiole not more than half a centimètre long, oboval-lanceolate, pointed, very finely dentate, wrinkled on both surfaces, with very short hairs above, the upper surface dark green, the lower clear green. The stems of the preceding year bear in all the axils composite almost corymbiform panicles, each including from fifteen to forty flowers. The pedicels are very short and very slender, the calyx cup-shaped, clear green, with five small dark green teeth. The five petals, well open, wide below, pointed at the extremity, are completely expanded. The stamens, five large and five small, have very large-winged filaments on which the clear yellow anther is directly inserted; the three styles are very short, as long as the small stamens, and hidden by them. The filaments of the stamens form a close and firm column, remaining so till blooming is over. The appearance of the flowers somewhat suggest those of *Solanum jasminoides*. The usual blooming season is the first fortnight in June, the shrub is then covered with a profusion of small, snow-white blossoms; the stems of the year often put forth fresh blooms in August and September. *V. Lemoine, Nancy.*

ORCHID NOTES AND GLEANINGS.

ONCIDIUM SPILOPTERUM (SAINTLEGERIANUM)

THIS handsome species, of which re-introduction has been made of late, proves to be one of the most useful of the tolerably cool-house *Oncidium*s, and an easy plant to cultivate. A good variety of it has flowers equal to those of *O. varicosum*, and quite as showy. A number of specimens of it are flowering out of an importation made by Messrs. W. L. Lewis & Co., of Southgate, and while all are pretty, there is

variation both in size and colour. The sepals and petals are of a more or less dark tint of red-purple; the front lobe of the lip, bright chrome-yellow; the conspicuous crest, claret-purple; the side lobes often yellow, the whole flower presenting a striking combination of colour. A grand variety of it is also sent by Messrs. Linden, l'Horticulture Internationale Brussels. *J. O'B.*

LAELIA ANCEPS SCHRÖDERIANA.

This is one of the most beautiful of the white forms of *Laelia anceps*, of which there appear to be several classes, according to the localities in which they were collected. The main difference consists in the section to which *L. a. Schröderiana* belongs, having broader sepals and petals than the ordinary type, and in the labellum having a larger and more openly displayed front lobe, which causes the parts of the flower to arrange with each other better.

A good example is sent from Tyn-y-Coed, Westonsuper-Mare, by W. M. Appleton, Esq., who considers it the best of his white *L. anceps*. *J. O'B.*

LYCASTE FULVESCENS.

This very distinct species, discovered by Linden about 1842, at some 6000 feet elevation on the Cordilleras of New Grenada, is notable for its singular-looking, drooping flowers, although it cannot lay claim to be showy like some of the genus. The scapes are about 6 inches long, and freely produced. The sepals and petals are of a light brown colour, the colour in the petals merging into white as it approaches the column, which is white. The lip is narrow, and fimbriated at the edges. In general appearance, this plant resembles *Lycaste Skinneri* when out of flower, the bulbs being, however, slightly narrower, as also the leaves. *R. L. Harrow, Royal Botanic Garden, Edinburgh.*

THE CULTIVATED SPECIES OF ASPARAGUS.

The genus *Asparagus* has grown in horticultural favour since the discovery of that most useful species *A. plumosus*. There are now two dozen species in cultivation at Kew, and there are also several others in Continental collections which we have not yet succeeded in obtaining. The decorative value of most of these is such as to justify a somewhat lengthy descriptive notice of them. The descriptions are necessary to enable growers to distinguish the several species which are more or less "mixed" in some collections. They are taken chiefly from the plants grown at Kew; but I have also consulted the monograph of the genus by Mr. Baker in the *Journal of the Linnean Society*, xiv. (1874), and his recent monograph of the South African species, published in vol. vi. of the *Flora Capensis*.

The genus comprises about 100 species, and these are spread through the temperate and tropical regions of the Old World. There are forty-eight species in South Africa alone, and it is from this region that the most ornamental of the greenhouse species have been obtained.

All the species are perennial, with generally fleshy roots or tubers. The stems are annual in some, perennial in others, most of them being spiny climbing shrubs growing to a length of from 5 to 20, or even 50 feet (*A. falcatus*). The true leaves are usually changed into spines, which are situated at the base of the branches, and are often stout and woody. The false leaves, termed cladodia, are the linear or hair-like organs, which we popularly call leaves; they are in reality modified branches. I have, however, used the terms leaves and spines in their popular sense in the following descriptions.

These cladodia are nearly always arranged in clusters at intervals along the branches, and the flowers generally spring from their axils. *A. medeoloides* is an exception, the cladodia in that species being solitary and leaf-like. They usually fall off the hardy species in winter, and they are easily affected by unfavourable conditions in all the species. Most of them flower and fruit freely under cultivation, so that seeds are available for propagation.

CULTIVATION.

All the species described below require greenhouse treatment, unless otherwise stated. Although found usually under dry, arid conditions, they are most satisfactory under cultivation when treated liberally in regard to soil and moisture. I have seen magni-

forms of *A. plumosus* except *nanus* strike root freely. I have tried to root *A. falcatus*, and failed; but they can all be propagated by division of the root-stock. When pot or basket specimens get shabby, it is a good plan to keep them dry for a few weeks, and then shake them out, repot in good soil, and start in a little

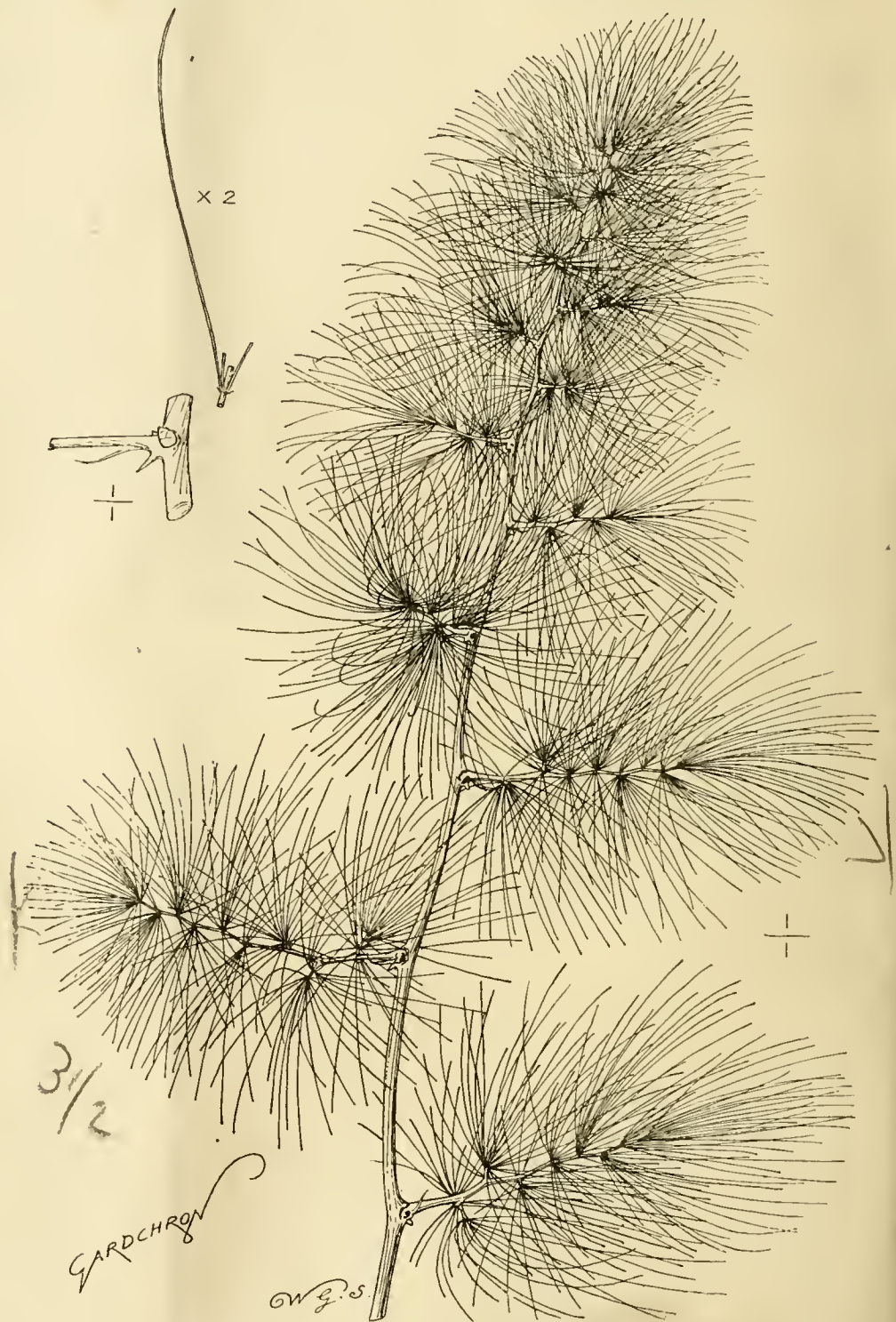


FIG. 46.—*ASPARAGUS LARICINUS*. (SEE P. 123.)

ficient specimens of *A. plumosus nanus*, *A. Sprengeri*, and *A. crispus* grown in a few months from small plants when potted in rich soil and placed in a hot, moist stove. Many of them are specially valuable for draping pillars, rafters, &c., in positions which are too shaded or damp for ordinary climbers. The majority of the species may be grown as basket plants. Cuttings formed of the small branches of all the

extra warmth. I am indebted for specimens and information to the Curators of the Botanic Gardens of Cambridge, Edinburgh, and Glasnevin, and to Messrs. F. Sander & Co.

A. acutifolius.—An old garden plant which we owe to South Europe, and which is hardy here. It has fleshy rootstock, hard, wiry, brown stems about 5 feet high, with rigid branches 3 to 6 inches long, thick

clothed with tufts of grey-green, hair-like, rigid leaves, which, in exposed situations, are almost spinous. Flowers yellow, a quarter of an inch in diameter. Berry pea-like, coloured deep crimson. This is cultivated in continental gardens under a variety of names, and is, perhaps, the best known of the hardier species. It is killed down to the ground in winter, but it starts into vigorous growth again in April or May. I have a specimen from Mr. Lynch, of Cambridge, which he collected at Costabelle, near Hyères.

A. æthiopicus.—An old garden plant, often called *falcatus*. It has been cultivated many years

A. africanus.—A vigorous climber, of which there is an old example in the Succulent-house at Kew, which produces annually numerous woody stems $\frac{1}{2}$ inch in diameter, and 12 feet long, smooth, pale brown, clothed with stout spines $\frac{3}{4}$ inch long, and an inch apart. These spring from a root-stock composed of a mass of ovoid fleshy tubers, 3 inches long. The leaves are borne on slender branches about 6 inches long, and they are rigid, dark green, $\frac{1}{2}$ inch long, densely clustered and persistent. The small white star-shaped flowers are produced in axillary umbels, and they are succeeded by globose berries $\frac{1}{2}$ inch in

the species is very variable. It was cultivated by Philip Miller. I can recommend it as a useful climber for large greenhouses. A native of the tropics of Asia and Africa, as well as the Cape.

A. Cooperi.—An elegant plant in the way of *A. plumosus*, and for which we are indebted to Mr. T. Cooper, who collected it in South Africa for Mr. Wilson Saunders, in whose garden it flowered in 1874, when it was described by Mr. Baker in the *Gardeners' Chronicle*, vol. xxi. p. 818. It climbs to a height of 10 feet, and has crowds of slender branches, with a slender spine at each joint, and which branch again, forming a kind of frond clothed with fine hair-like leaves $\frac{1}{2}$ inch long, in tufts of about a dozen. Flowers creamy-white, very small. Berry, the size of a pea, red. (Mr. Baker says stems 1 to 2 inches thick, but I have not seen any that exceeded $\frac{1}{2}$ inch). We have a plant which is apparently the same thing, from Messrs. F. Sander & Co., who imported it from South Africa.

A. crispus.—A popular garden plant, generally known as *A. decumbens*. It was in cultivation a hundred years ago, and has been in the Kew collection for at least the last twenty-five years. It is usually grown in baskets suspended near the roof, its long, hair-like flexuose stems and branches forming a cloud-like tangle, which clothed with dark green leaves and white star-like flowers with orange-coloured anthers have a pretty effect. The root-stock is composed of numerous fleshy, oblong tubers. The stems are annual, 2 to 4 feet long, freely branched, the branches zig-zag, and bearing numerous glaucous green leaves arranged usually in pairs close together, and not more than $\frac{1}{4}$ inch long. This species is remarkable in having an oval soft berry $\frac{1}{2}$ inch long, containing about half-a-dozen seeds. The berry is brown when quite ripe. The seeds germinate freely. A native of South Africa. I have seen plants of it named *A. stipulaceus*, but the true plant of that name is very different.

A. declinatus.—A plant of this was received without name from Grahamstown, in 1892. Messrs. Sander & Co. have also imported it from Natal. It is allied to *A. plumosus*, from which it differs in having deltoid prickles, pale green stems, and smaller berries. The stems on the Kew plant are 2 feet long, erect, wiry, with hair-like drooping branches bearing numerous tufts of bright green thread-like leaves $\frac{1}{2}$ inch long. Flowers very small, white, campanulate. Berry, small, globose, one-seeded. According to Miller this species was in cultivation here a century ago. There is also at Kew a plant with thin wiry stems, less than a foot high, which is probably a small form of *A. declinatus*. Both this and the type lose most of their leaves in winter.

A. falcatus (fig. 47).—One of the most striking plants in the large Temperate-house at Kew is an enormous specimen of this *Asparagus*, which is trained against the north staircase, where it has formed a perfect thicket two yards through and 25 feet high, of long rope-like intertwining spinous, fawn-coloured stems, some of them fully 50 feet long, and clothed with wiry woody branches, bearing whorls of leaves from 2 to 3 inches long, nearly $\frac{1}{2}$ inch wide, falcate and bright green. The stems when young are thick, and succulent as the best examples of the *Asparagus* of the kitchen garden, and they are grey-green mottled with brown. In 1872, Mr. Baker described this identical plant in the *Gardeners' Chronicle* under the name of *A. æthiopicus ternifolius*. It then attracted much attention, "the stems being crowded from top to base with graceful firm sword-shaped spreading bright green leaves, and copious clusters of bright star-shaped pure white flowers with red anthers. It is one of several species brought from South Africa by Mr. T. Cooper." For large conservatories, and particularly in moist shady corners where ordinary climbers will not thrive, this is an ideal plant. It is a native of the tropics of Asia and Africa as well as the Cape.

A. laricina (see fig. 46).—This handsome species has been in the Kew collection at least twenty years. It is grown in the Succulent-house, where, from a vigorous root-system, it sends up annually stout succulent shoots, which grow to a length of about 12 feet, and when fully developed are decidedly orna-



FIG. 47.—*ASPARAGUS FALCATUS*.

at Kew, where, in the Succulent-house, it has formed a dense mass of fleshy tubers, from which spring numerous green wiry stems, 10 feet long, $\frac{1}{2}$ inch in diameter, bearing brown sharp spines $\frac{1}{2}$ inch long, and flat falcate leaves $\frac{1}{2}$ inch long, occurring in clusters of from three to six upon the branches. Flowers white, in racemes 3 inches long. Berry globose, $\frac{1}{2}$ inch diameter, one seeded. A useful climber for the warm conservatory, not unlike the popular *A. Sprengeri* in appearance, and superior to that species in being evergreen under ordinary treatment. The variety, *natalensis*, also grown at Kew, has larger leaves. The species is wild in south and tropical Africa.

diameter, and one-seeded. This species appears to be very common in South Africa. Mr. Baker describes four varieties of it.

A. asiaticus.—A vigorous climber, the Kew plant having stems 30 feet long, $\frac{1}{2}$ inch thick, wiry, bearing stout spines below, and long slender drooping branches above, clothed with very dark green hair-like leaves $\frac{1}{2}$ inch long, soft and velvety to the touch. It grows well in a somewhat shaded position, pushing up stout shoots every year, which attain their full length in a few weeks. Flowers few, axillary, small, white. Berry globose, one-sixth inch in diameter, one seeded. This description does not agree with that given by Mr. Baker, but judging from wild specimens

mental. It is similar to *A. retrofractus*, differing in its stouter stems, larger prickles, and longer leaves. The stems are perennial, terete, dark brown, woody, $\frac{1}{2}$ inch in diameter at the base, very spinous, freely branched, the branches zig zag and grey, the leaves in clusters $\frac{1}{2}$ inch apart, hair-like, $1\frac{1}{2}$ inch long, bright green, persistent. Flowers axillary, many in a cluster, small, campanulate, white. Berry globose, dull red, one-seeded, one-sixth of an inch in diameter. Common in various parts of South Africa. I cannot find when it was introduced, and I have never seen it in cultivation elsewhere. It is an excellent pillar-plant. *W. Watson, Kew.*

(To be continued.)

LÆLIA ANCEPS WADDONIENSIS.

OUR illustration (fig. 48), represents the fine form of *Lælia anceps*, which was exhibited by Philip Crowley, Esq., Waddon House, Croydon (gr., Mr. J. Harris), at the Royal Horticultural Society, on February 8 this year, when it was awarded a First-class Certificate. *Lælia anceps Waddoniensis* belongs to the *L. a. Schroderiana* class; its flowers are pure white, the side-lobes of the lip bearing clear light purple lines.

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Strawberries.—The old and new plantations of Strawberries should now be thoroughly cleaned, all decaying leaves being removed by cutting them off close to the plant with a knife, and the beds hoed over to eradicate weeds, all runners that may have grown since the beds were cleaned in the autumn being removed, and only the original plants left. Some gardeners allow some of the runners to remain each year with a view of replenishing the bed; it, however, is much better to make a new plantation with prepared runners whenever an old bed shows signs of giving out, and, as a general rule, it may be said that a plantation is of small value after three crops of fruit have been taken. The proper time for planting a bed is early in the month of August. A Strawberry bed or plantation should not be dug over after it is planted, the chief roots being near the surface, and these would be destroyed or much injured by digging the land. If farmyard manure was applied as a top-dressing it should now be pulverised with the rake, so as to be readily incorporated with the soil. Mineral manures are of great assistance to Strawberries, and they are easy of application without any disturbance of the roots; and a liberal dressing may be put on exhausted beds just previous to the commencement of growth. Potash and soda should form the chief ingredients, the Strawberry being rich in these substances, therefore wood-ashes obtained from green twigs and branches form a good application. Whatever is given must be scattered evenly among the plants, and stirred in with a Dutch-hoe. Where the Grove End Scarlet is still grown for preserving purposes, and the Hautbois for dessert, a method differing from the above should be pursued, for, owing to the excessive growth of the runners of these varieties it is not possible or desirable to keep the beds clear of them, and for convenience of gathering and cleaning, and as a means of securing plenty of fruits, it is better to let each row extend to a width of $1\frac{1}{2}$ to 2 feet, and have alleys $1\frac{1}{2}$ feet between. The first-mentioned variety, once very common in gardens, is seldom met with, yet it is valuable on account of its small size and bright colour when boiled, being equally good whole or as a jam, and it is a great cropper. The varieties of Hautbois are favourites with many on account of their peculiar and agreeable flavour. It is very necessary to obtain the plants from a good bearing plantation, there being male and female plants. Vicomtesse H. de Thury gives a better crop for preserving than Grove End Scarlet, and is rather larger.

Alpine Varieties are very useful for autumn fruiting, and are much esteemed for their refined flavour by many persons. Some are grown from runners, and one variety can only be increased by means of seed, no runners being made. All the varieties can be raised from seed, and the Improved Red should be sown in heat now, and if the plants are grown on quickly before planting out in April, they will afford fruit in the autumn. Runners of those varieties that make them may also be planted

in rows of mixed white and red varieties 2 feet apart, and 9 inches between the plants, in a moist situation. The land should be heavily manured previous to bastard-trenching it. In planting, make the soil very firm about the roots, and occasionally in dry weather apply water at the root. It is well to slightly mulch the land after planting, and afford a rich mulch before the fruit shows, with an occasional hoeing, which is all the attention a bed of Alpines requires to keep it in good condition for several years. It is, however, good policy to plant a few hundreds of young plants, either seedlings or runners, each year, destroying a corresponding number of the oldest plants.

PLANTS UNDER GLASS.

By W. MESSENER, Gardener, Woolverstone Park, Ipswich.

Ericas.—The staking and tying of the plants should now be completed, no more stakes being employed than are actually required, care being taken to remove the whole of the decayed ends of stakes, so that none is left in the soil, or fungus may spread and destroy the roots. If possible, place the new stakes in the holes from which the old ones have been withdrawn, and use stout green thread as the tying material. Young *Ericas* should not be allowed to become pot-bound. The plants do best in lumpy fibrous peat of good quality, that has been stacked not less than twelve months, a small portion of charcoal of hazel-nut size, and clean washed coarse silver sand; and the pots should be clean, and the drainage carefully arranged, big crocks at the bottom and finer ones above. Do not disturb the ball further than to remove the drainage, and pot firmly, working the compost down the sides of the ball. Let the plants stand on a cool bottom, and where they can receive plenty of ventilation, merely preventing the entrance of frost. In the case of repotted plants, do not afford water to them for some days after potting, but syringe the outsides of the pots, for the longer the plants can be kept without applying water to the soil after repotting the better it will be for them.

Epacris.—Those plants which flowered early should have the main shoots cut back one-half their length, and very thin shoots removed. Afterwards place them in a cool position, where they can have abundance of air, and be syringed once or twice daily, repotting those that require it as soon as growth recommences. A similar kind of compost should be used as that advised for *Ericas*, and the same care should be exercised in potting them. Any plants that did not start freely into growth last season may have the flowers picked off, and be allowed to grow without being cut back.

Panoratiams.—Plants that have rested for some months may now be repotted or top-dressed, as the case may demand. If the latter, use two-thirds loam, and one-third of dried cow-manure, passed through a moderately fine-meshed sieve; if the former, use a mixture of good fibrous loam in a lumpy state, some charcoal broken into small lumps, cow-manure, and sand. In repotting, shake away all of the old soil from the roots, and be careful in planting not to bury the bulbs, and to spread out the roots near the surface. These plants succeed in almost any position in the stove after potting until re-established, if syringed freely, but not afforded much water. If introduced into heat, the plants will come in useful for early decoration.

The Forcing-pit.—*Spiræa japonica*, *S. confusa*, *Staphylea colchica*, *Lily of the Valley*, *Deutzia gracilis*, and *Lilium longiflorum Harrisii* just showing the flower-buds, will force readily if strict attention be paid to affording water. In the case of the *Lily*, it is a good plan to place the pots in larger ones, and fill in round them with moss or Cocoa-nut fibre refuse, in order to hinder evaporation of moisture from the soil, and maintain an equable degree of warmth and moisture in the soil. Bulbs will come on quite quickly enough in cool pits during the present mild weather, and the flowers will in consequence be finer and last much longer than those grown in heat. Examine plants of *Marguerites* for signs of the maggot in the leaf, and destroy them before their numbers increase. Badly-disfigured leaves should be removed and burnt. Lift and place in pots and boxes a batch of roots of Solomon's Seal, and grow in gentle heat for a time, and then gradually harden off; the flowers are useful for cutting, &c.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

Potatoes.—It is now time to plant tubers of some early variety at the foot of the south walls, or on the border in front of such wall. Not much manure should be used at planting-time, and I prefer to

apply instead wood-ashes, charred earth, spent Cucumber or Melon-bed soil. It is well to plant in beds of 5 feet wide if away from the wall, and in case of need to span these with bows of Hazel, &c., support mats, canvas, &c.

Parsley.—Seeds of Myatt's garnishing, triple-curved, or Fern-leaved Parsley, may now be sown on a border in rows 1 foot apart, covering the seed with finely-sifted soil to the depth of $\frac{1}{2}$ inch. The old lines of Parsley should be cleared of dead leaves, and a slight sprinkling of wood-ashes applied between the rows, and mixed with the soil by using the hoe. During severe frost, protection should be afforded the plants in the manner described in a former calendar.

Turnips.—A sowing of Turnip-seed may be made on a warm border, choosing quick varieties, as Early Milan, or Snowball; protect the seeds from birds by netting supported on forked twigs.

Planting Crowns and Sowing Seed of Asparagus.—It will usually be found necessary to trench the land intended to be formed into beds to the full depth the soil will allow without spoiling it, putting plenty of half-rotten manure at the bottom of the trenches, and some fully decayed beneath the uppermost spit; some half-inch bones may likewise be added and mixed with the upper spits. Leave the surface in a rough state till the time comes for sowing and planting. The latter should not take place till the stems have grown a few inches, as by doing this there is little or no risk of decay setting in on any part that is broken or injured. Before proceeding to plant, afford the soil a good dressing of road-grit, sand, or lime-rubbish, forking these ingredients into the land by nearly one sp it deep. The plants should be strong one-year or not more than two-year-old seedlings, and these should be set out in rows 15 inches apart, and 12 inches between the plants. A cloudy day, when rain seems imminent, should be chosen for lifting and planting, and much care must be taken to expose them for as short a time as possible to the air. Excellent results are obtained by sowing seed early in the month of March, in beds of three rows each, or in single lines on the flat, and not transplanting but thinning them. The drills should be drawn at 15 inches apart, and have a depth of 1 inch; and to better ensure germination, cover with finely-sifted soil taken from the alleys or from the surface, using a rake to finish off and level the soil. The alleys between beds should not be less than 2 feet. Good varieties are Early French Giant, Battersea, Connoyer's Colossal, and Reading Giant.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Pine-apples.—These fruits are now imported into this country to such an extent, and sold at such low prices, that home-grown Pine-apples cannot compete with them, if appearance alone be thought of. It is in point of flavour that the home-grown fruit is still the best flavoured and ripest. The coming month is a time when a good deal requires to be done in the pinery, in the renewing of spent hot-bed or plunging material, and in repotting. Bottom-heat is obtained in a variety of ways, from hot-water pipes, from tanner's bark, and from the leaves of the Oak and the Beech, which latter are perhaps the best of all. Whether for partial or entire renewal, the necessary quantity of tan and of tree-leaves require to be got in readiness, by placing in a heap to ferment. The walls of the pit or house should be lime washed, and the wood-work and glass cleaned with soap and water, and the men set to clean the plants if scale affect them. Let the new leaves be trodden firmly, and enough of them put in to allow for considerable shrinking in bulk. Usually the bottom-heat is derived from hot-water pipes, or from a tank under the bed, or from a bed of tan $2\frac{1}{2}$ to 3 feet thick. If tan be used for affording bottom-heat, and not merely to plunge the pots in, only sufficient new material will be required as will supply the necessary degree of bottom-heat for six months; if, however, there are hot-water pipes, or a hot-water tank, these methods of heating may remain out of use so long as the tan keeps its proper degree of heat. The old tan that is not decayed generally should be passed through a $\frac{1}{2}$ -inch meshed screen or sieve, in order to free it of the finer particles, the coarser being kept back for mixing with the new tan. The proportion of new to old tan may range from $\frac{1}{2}$ to $\frac{3}{4}$, and both should be mixed well together. The Pine-apple will throw good fruits when grown in loam, horse-dung, and leaf-soil; in loam and peat, or in loam alone if it be of good quality, and in rich peat. A kind of soil available by most gardeners in country places, is light pasture-loam of which the fibry parts are partly decayed—that is, it should

have been cut in the autumn, 2 to 3 inches thick, and stacked in an open shed. These turves should be pulled to pieces by hand, large or small as may suit the plants for which it will be used, i.e., about the size of a hen's egg for a plant to be transferred from an 8-inch pot to one of 11 or 12 inches; and of the size of hazel-nuts for smaller ones. The lumps and fibrous parts only should be used, the finer particles being taken out of it by sifting slightly. To each wheelbarrow-load of loam add a 7-inch potful of charcoal of the size of hazel-nuts, another of fresh soot, and the same of bone-meal, turning the heap two or three times so as to mix it thoroughly. Never use a soil without first warming it to as high a degree as that of the hotbed, and it must be slightly moist. The sizes of the pots used will depend upon the variety, the size and

plants not pot-pound should be repotted into larger pots, badly-rooted plants being repotted in smaller ones after the old soil is shaken from the roots. When placing the ball in the fresh pot, let it be at such a depth that when the work is done, the soil will reach up to that part of the stem whence the leaves spring, and be sure to leave space for holding water 2 inches deep. In repotting, the soil should be put round the ball, a large handful at a time, and make it quite firm from time to time with a blunt-ended potting-stick, and finish off level and smooth. Plunge the pots to three-quarters of their height in the bed, and at such a distance apart as will give them space to grow without getting crowded. Suitable temperatures are for bottom-heat 85° at the base of the pots, and top-heat about 65° at night,

that drip does not reach any plant. Plants that have been resting during the winter, and are now to be started into fruit, may be kept a few degrees warmer than what is recommended for succession plants.

Suckers should remain on the old stools until they are strong and sturdy, and as they reach this state, detach them with a sharp twist. Before potting, trim the base of each smoothly, and strip off a few of the lowermost leaves, and, according to the variety, pot them into 6 or 8-inch pots, and plunge to the rim of the pots in a pit by themselves, or at the front of the succession plants.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Bedding Calceolarias.—The autumn-struck cuttings of these plants that are being harboured in a cold frame will have made much growth, and the points of the leading-shoots should be pinched out in order to ensure a bushy, many-branched form. Let them be afforded a great deal of ventilation whenever the weather is not frosty or wet, even tilting the light at the back of the frames on mild nights. Do not allow them to get dry at the root, at the same time guard against an excess of moisture. The soil in which the *Calceolaria* thrives is one which has been liberally manured with rotten dung, and deeply dug; for a frequent cause of the plants dying off in the summer is the pooriness of the soil in which they are planted. The best bedding varieties are Golden Gem, Sultan (a dark-flowered variety), and amplexicaulis, the lemon-coloured variety—this is of taller growth than the others and is more adapted for large beds, the only objection to the variety being its lateness in coming into flower.

Carnations.—The time will soon arrive when the plants which have been wintered in frames should be planted in the beds. Carnations are much more effective when each variety has a bed to itself, than when mixed altogether. When, however, the number of any variety is limited, or if in the case new varieties, massing may not be possible. Amongst the best massing varieties are the following:—crimson and scarlet and white Cloves; Duchess of Fife, of a delicate pink hue, and a good grower, with a compact style of growth, and excellent for cutting; Ruby Castle, a deeper pink than the foregoing, with serrated petals—a useful flower; and The Hunter, a dark form of Mrs. Reynolds Hole, the calyx of which does not split like that variety. In yellows, there are Germania, Leander, Pride of Penhurst, and Miss Andry; in scarlets, Aline Newman, Hayes' Scarlet, and Queen of the Bedders; in rose and rose pink, Mary Morris and Ketton Rose are good; and in whites, Gloire de Nancy; The Pasha, of an apricot colour, is one of the best, and one that for bouquets and buttonholes is always desirable. A Carnation-bed should be moderately manured, and receive a good quantity of road-grit or sharp sand, and charred soil, especially if the soil be heavy and retentive, and by-and-by, when the plants are growing, a slight top-dressing of farm salt will have a good effect on them. The beds should be dug forthwith, and left in a rough state for a week or two before levelling and making it ready for planting.

General Work.—The lawn-grass is growing, and mowing will soon have to be done; and, in any case, the turf must receive a rolling before the machine or scythe are used. The mowing-machine may require repairs, and these should be attended to without delay. It is always best to let the maker have the mower to repair it; and when his factory is in a distant part of the country, a good deal of time elapses before the machine is returned. Sometimes the local smith can put little matters right. Hedges of laurel may be pruned, not allowing these, if possible, to get much top growth, otherwise the hedge gets thin at the bottom. It is good practice to trim the upper portion somewhat severely, although the effect may in some cases be bad for a short time. Stored Gladioli-corms should first be examined, and then laid out in trays filled with sand so as to fit them for planting out next month. Begonia-tubers for bedding may now be started in a pit or house having a temperature of about 50°, not allowing the heat to become much more than this, or growth will be spindly. Keep bedding Pelargoniums quite free from dead foliage, and begin to afford them a little more water, abundantly ventilating the pits, &c., on warm days. Cuttings of these plants started in warmth may be placed round the edges of 4-inch flower-pots filled with sandy loam, and stood in a house with a warmth of 50°, and close to the glass. Avoid affording these cuttings much water, or much moisture in the air, or damping off will occur.



FIG. 48.—*LELIA ANCEPS WADDONIENSIS*: FLOWERS WHITE, BASE OF LIP YELLOWISH. (SEE P. 124.)

(Photographed for the *Gardeners' Chronicle* by Mr. J. Gregory, Croydon.)

vigour of the plants, 10 to 11-inch pots being suitable for Queen's, and 11 to 12-inch ones for Smooth Cayenne and similar strong growers. Never use a dirty pot, and if new, the pots should be laid in a water-tank for an hour before being used. Large crocks should be used, the concave side downwards, topping these with small ones, the whole making a thickness of 2 to 3 inches; on these put a thin layer of rough soil, and a sprinkling of soot. Plants standing in 6 or 7-inch pots, which are well-rooted, may be potted into 10 and 11-inch, and those in 7 or 8 into a larger size. Before turning them out twist off any visible suckers, and a few of the lowermost leaves. A few days before repotting begins, afford water to all the plants that require any. When a Pine plant is turned out of its pot, carefully remove the crocks and the surface-soil down to the roots, and loosen some of the roots at the sides. Of course, only well-rooted

and 70° on dull days, rising to 85° by sun-heat, and 5° more in the afternoon after closing. Successions may have a bottom-heat of 80°, and 5° less top-heat day and night. Suckers will do very well in the same kind of bottom-heat, or a little less till they obtain roots. Ventilation needs to be carefully afforded during the present season, a small quantity of air being admitted at the top of the house during the warmer hours for a short time only. The fruiting-house, if any of the fruits are ripening, should not be kept very humid, and no water should be afforded to any plant with fruit showing any tinge of yellow; but growing fruits will need water, and occasionally manure-water when the soil is approaching dryness. Damping down may take place once daily for the present, and on sunny days the plants may be dewed over with the syringe at closing time, but not those with colouring fruits; and be careful

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, FEB. 28 { National Chrysanthemum Society's
Annual Meeting at Anderton's
Hotel, Fleet St., E.C., at 7 P.M.
THURSDAY, MARCH 3—Linnean Society Meeting.

SALES.

TUESDAY, MAR. 1 { Roses, Carnations, Dahlias, Gla-
dioli, &c., at Protheroe & Morris'
Rooms.
WEDNESDAY, MAR. 2 { Japanese Lilies, Tuberoses, Gla-
dioli, Palms, Greenhouse Ferns,
&c., at Protheroe & Morris'
Rooms.
{ Roses, Plants, Fruit Trees, &c., at
Mr. Stevens' Rooms.
THURSDAY, MAR. 3 { Border Plants, Bulbs, Roses, &c.,
at Mr. Stevens' Rooms.
FRIDAY, MAR. 4 { Imported and Established Orchids,
at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from
Observations of Forty-three years, at Chiswick.—49°7°.

ACTUAL TEMPERATURES:—

LONDON.—February 23 (6 P.M.): Max., 45°; Min., 34°.
PROVINCES.—February 23 (6 P.M.): Max., 45°, Scilly;
Min., 32°, Aberdeen.

Light frost; heavy snow-storm in the west of
England.

GREAT credit is due to the admin-
istrators of this excellent Insti-
tution for the means they took a
few years ago to promote the interests of the
candidates generally, and especially of those
who had been subscribers for a series of
years. A few more concessions in this direc-
tion will remove or materially lessen the
objections and disappointments we now hear
of. After every election we receive a certain
number of complaints, and, indeed, as no
institution is perfect, we look upon them as
more or less inevitable. This year the result
of the ballot seems to have given an unusual
amount of dissatisfaction. Whatever be the
grounds of objection, it is manifest the respon-
sibility for them rests with the voters themselves.
Did they assess the claims of the several candi-
dates before they gave their votes, or did they
not rather give their suffrages to some one they
wished to get in? or perhaps they merely
handed their voting-paper to some friend. The
complaints that have reached us are mostly of
two kinds—one, that non-subscribers have
by the present system of voting an unfair
advantage, and that interest and the exertions of
friends are more potent factors than the claims of
the candidates. It certainly looks like it, and it
affords, to our thinking, a strong argument in
favour of the extension of the plan already
alluded to, by which the committee allots a certain
number of votes to each candidate in proportion
to the length of time and to the amount he has
subscribed. Increase the number of votes so
allotted, and the chances of the subscriber will
be all the greater. This plan is in accordance
with a suggestion from one of our correspon-
dents, that every voter should give two-thirds
of his votes to those who have been subscribers
for a certain period, and the remaining third to
the non-subscribers. We do not think the
voter could be trusted to do this, but the com-
mittee might easily do so.

The next most numerous cases of complaint
do not excite so much sympathy. Mr. A. B.
has been a liberal supporter of the Insti-
tution, and when he finds the candidate
he nominated has not been elected, he feels
aggrieved. We have the greatest possible
respect for the generous donor, and we rejoice to
see his cheques, but we ought not to put his
interests and wishes before the claims of the
aged and the necessitous. If anyone wishes to
secure the election of a particular candidate,
no doubt the committee would gladly arrange
matters with him after consultation with their

actuary as to the amount to be paid to ensure
admission.

For whose benefit does the Society exist?
for that of the voters, or for that of the
necessitous? If every voter would ask himself
this question before signing his paper there
would be a better chance for the immediate
success of the most necessitous.

When those of the candidates have been
elected, who by a sufficient length or amount of
subscription, or by their urgent necessity have
the prior claim, then should come the turn of the
non-subscribers, and of those less heavily
afflicted. It must always be remembered that
all the candidates are, in the opinion of the com-
mittee, worthy, though the necessities of some
necessarily must be more urgent than others.

Some of our correspondents compare the
benefits to be derived from various friendly
societies, such as the Odd Fellows, with those
to be obtained from the Gardeners' Bene-
volent, much to the detriment of the latter.
We do not know enough about the societies in
question to make comment upon them. It must
suffice, therefore, to say that the object of the
Gardeners' Benevolent is different from that of
the benefit societies. It is for the encourage-
ment of self-help, the alleviation of misfortune
and infirmity, and the exercise of charity to
others less favourably circumstanced; while,
looked at merely as an investment, the pensions
often represent extraordinarily good value much
better we believe than could be obtained
elsewhere.

One correspondent, who characterises as most
ridiculous our suggestion that the committee
should select the candidates according to the
urgency of their claims, and then submit the
list to the voters assembled at the general meet-
ing for confirmation or otherwise, maintains
that it is not possible for the members of the
committee who mostly live in or near London,
to know the merits of those who have spent
their lives in the country. This is very specious,
but it is met by the fact that the committee
does, even now, investigate and make public
the circumstances of each case as it is brought
before it, and its members must of necessity
know more about the relative qualifications of
the whole body of candidates, than anyone else
can do. If the committee do not do their duty
—turn them out. Is their ruling objected to?—
bring the objection before the general meeting,
and let the voters decide the question.

The same correspondent stigmatises as non-
sense the proposal to give more power to the
committee under adequate safeguards. Possibly
it is, but we do not think so, and we do not
think those who know the way in which the
committee does its work will have any such
opinion. Moreover, the same or a similar plan
works well in similar cases, and does not lead
to the same amount of dissatisfaction. In the
meantime, we entirely agree with our corres-
pondent that every effort should be made to
induce gardeners to join early in life, and to
enlist the sympathy and support of their
employers on behalf of a Society which has
effected so much good in the past, and the area
of whose beneficent ministrations happily
extends yearly.

Medallo-mania
at the R.H.S.

THE intention, if not the method
of action of the Council of the
Royal Horticultural Society in
endeavouring to restrain the ridiculous medallo-
mania that has set in, deserves the sympathy
of all those who realise the dignity of their work
or the honour of the Society. There are certain

special societies, which seem to exist for no other
purpose than to give medals or other awards.
There are prizes 1st, 2nd, 3rd, 4th, 5th, in even
yet more numerous classes, so that scarcely
a competitor or exhibitor can fail to receive an
award of one sort. The Manchester Orchid Society,
as will be seen in our present issue, is also very
profuse in its awards. We had hoped the Royal
Horticultural Society was worked on higher
principles than this. We know as well as most
people what may be, what is, alleged on
behalf of prize-giving, and we acknowledge the
validity of these comments in principle, whilst
objecting strongly to excessive frittering in detail.

Carefully considered and strictly limited
awards are one thing, lavish distribution of
them quite another; circumstances alter cases,
and proceedings which might be harmless or
even beneficial at a village show are out of place
at the exhibitions of the representative Society
of the Kingdom. The main object of awarding
prizes is to promote horticulture, any advantage
that may accrue to the individual is altogether a
secondary matter. The proverbial line is no
doubt as difficult to localise as the boundaries in
an African "hinterland," but where general prin-
ciples are not lost sight of, there need be no
special difficulty in allotting prizes or in with-
holding them, as the case may be. We are not
careful to go into statistics, because the over-
production of medals and awards is palpable
and obvious to every disinterested looker-on.

It might be well that no award of any kind
should be given without the direct assent of at
least two-thirds of the committee, and that a
provisional system of marking, such as is
carried out at Chiswick, according to which
exhibits are marked *, **, or ***,
according to their merits, should in many cases
supersede the award of certificates or medals.

Votes of thanks, or special votes of thanks,
might also well replace a large number of these
medals. Such courtesies would satisfy many
an amateur, and would in no case be liable to
disparagement, as the medals undoubtedly are
at present, and will be still more if some steps
be not taken to reduce their numbers.

ISCHARUM EXIMIUM.—A very curious and
interesting Aroid from Western Cilicia, where it
grows in loamy soil at certain places in the plain.
The spathe is of a dark black-purple colour on the
upper surface; green, spotted with red on the under
surface. The broad, simple leaves form a pretty
rosette. The fruits ripen under the surface of the
soil as in the case of *Arachis hypogæa*. Fig. 49 shows
the plant growing in its natural locality.

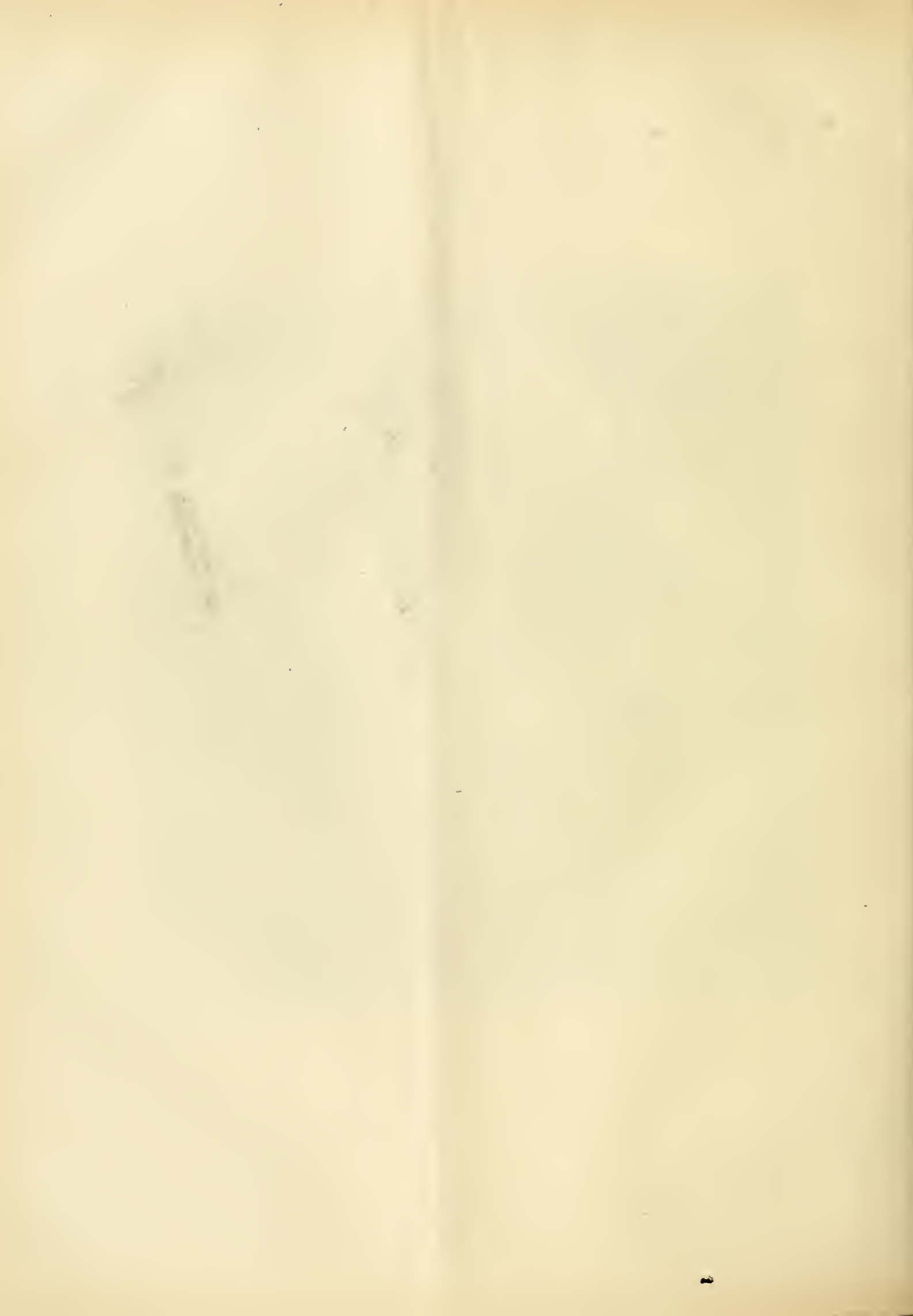
LINNEAN SOCIETY.—On the occasion of the
evening meeting to be held on Thursday, March 3,
1893, at 8 p.m., the following papers will be read:—
1. "On the Sense Organs of the lateral line in certain
Fishes," by Mr. F. J. COLE. 2. "On the occurrence
of *Carex helvola* in Britain," by Mr. G. C. DRUCE,
F.L.S. 3. "An Arctic Spider from Franz Josef
Land," by Rev. A. PICKARD-CAMBRIDGE, M.A., F.R.S.

"KEW BULLETIN."—The November number,
recently received, is mainly taken up with the Report
of the West India Royal Commission, to which notice
has been already drawn in these columns.

GARDENERS' ORPHAN FUND.—The annual
meeting of this useful association was held on Friday,
Feb. 18, at Anderton's Hotel, Fleet Street, WILLIAM
MARSHALL, Esq., in the chair. Among those present
were Messrs. Veitch, Wynne, Poupert, Roupell,
Asbee, Gordon, Wright, Fraser, Jones, Reynolds,
R. Dean, Outram, Cumming, Masters, &c. The pro-
ceedings were of the most formal character, the
members being, as they have reason to be, satisfied
with the work of the committee. The adoption of
the report was proposed from the chair, and seconded
by Mr. Bates. It elicited little discussion beyond
the expression of an opinion that in future it would



FIG. 49.—ISCHARUM EXIMIUM: HARDY AROID, GROWING IN ITS NATIVE LOCALITY IN CILICIA.
(SEE P. 126.)



be well to limit the number of children elected from one family. The treasurer, auditors, committee, and secretary were (with the necessary alterations in the case of the committee) re-elected. The movers or seconders of the several resolutions being Messrs. Poupart and Cuthbert, R. Dean and Roupell, Aesbee, May, Cummins, Reynolds, Walker, Jones, and Fraser. After the work of the scrutineers was completed, the members regaled themselves at the usual friendly dinner under the presidency of Mr. W. Marshall. The following children were elected:—

1. AGNES MACINTOSH	349 Votes.
2. ROBERT JOHN SMITH	332 "
3. JAMESINA BAIRD	278 "
4. LYDIA ANNIE MILNE	275 "
5. HERMIONE KOSBAB	272 "
6. WILLIAM EWART HOLMES	263 "
7. RUTH AMY WARTH	241 "
8. MARGARET ANNIE RICHARDSON	232 "
9. CONSTANCE MARY JAMES	209 "
10. ANNIE KATHLEEN FRENCH	166 "

(Added by the Committee at the Meeting).

NATIONAL CHRYSANTHEMUM SOCIETY.—The annual meeting of the members of this Society to be held on Monday next is likely to be of great interest, as many important matters connected with management will be discussed. We have received from Mr. J. W. MOORMAN a pamphlet, embodying the views of himself and others (which have been published by the horticultural journals) in respect to the connection of the Society with the Royal Aquarium, which we have always considered to be a most unsuitable locality for the Society. The following questions are asked by Mr. MOORMAN:—

First.—Whether the time has not arrived for the Society to have a paid Secretary, and no vote?

Secondly.—That it be an instruction to the Committee to inquire and report on what other places (if any) can be obtained for our exhibitions, either by a subsidy, as now, or otherwise?

Thirdly.—To consider if the time has not arrived when in reliance on our own resources we can proceed on independent lines like most provincial societies, which are in a sound financial condition?

Fourthly.—As there appears to be much disquietude arising from the fact that the Secretary is the delegated referee at all our exhibitions, whether the advisability of a change should not be considered in the form of a small Reference Committee or otherwise?

Fifthly.—That as the custom of selling the floor space of the Aquarium to trade exhibitors (some of whom are not bona fide growers of Chrysanthemums), and that inasmuch as such sales have driven competitive exhibits of Chrysanthemums into semi-dark galleries upstairs, whether such custom of selling space for a different purpose than that for which the National Chrysanthemum Society was established shall be seriously considered with a view to its discontinuance.

Sixthly.—That an Exhibition Committee be appointed to closely examine the question of minor shows with the object of ascertaining their advantages or otherwise, to the Society, and report the results of their investigations to the general committee.

METROPOLITAN PUBLIC GARDENS ASSOCIATION.—The fifteenth annual report of this body is now before us, and we commend it to the attention of all interested in the work of trying to "supply one of the most pressing wants of the poorer districts of London by providing breathing and resting-places for the old, and play-grounds for the young." As a guide to the enterprises undertaken by the Association, it may be mentioned that the successful work accomplished in 1897 including the laying-out of three new gardens, provision of gymnastic apparatus for one play-ground, the erecting of three drinking-fountains, seats in twelve localities, trees in three places, and assistance given in preserving, acquiring, and improving thirteen open spaces.

N. A. PAILLEUX.—The death, on the 8th inst., of this gentleman, in his eighty-sixth year, is announced. M. PAILLEUX took great interest in horticulture, and in the introduction of novelties. It was he who introduced to our gardens what are known as Crosnes or Chinese Artichokes, the first-name being derived from that of the village where M. PAILLEUX resided and distributed the tubers. The book, *Le Potager d'un Curieux*, in which he had the assistance of M. Bois, is a standard book of reference on the rare culinary plants.

SHIRLEY AND SURROUNDING DISTRICT GARDENERS' AND AMATEURS' MUTUAL IMPROVEMENT ASSOCIATION.—The monthly meeting of the above was held at the Parish Room, Shirley, Southampton, on the 21st inst., the President presiding over a fair attendance of members, when Mr. E. T. MELLOR, Lecturer in Biology to the Hartley College, Southampton, gave his second and concluding lecture on Fungi, this part being on "Injurious and Beneficial Fungi."

OSTRYA CARPINIFOLIA.—The death of what was probably the finest tree of its kind in the kingdom is announced in the *Kew Bulletin*. The tree was figured in the *Gardeners' Chronicle*, September 30, 1890; and in *LOUDON'S Arboretum* in 1838. The dimensions of this tree which grew near to the Economic House, were:—Height, 59 feet; spread of branches, 68 feet; girth of trunk 3 feet from the ground, 9 feet 4 inches. Fruit was abundantly produced, but no perfect seeds were formed.

A CHOICE GATHERING FROM ABBOTSBURY.—From Abbotsbury, near Dorchester, we have received, through the kindness of Mr. BENBOW, an interesting collection of flowers grown out of doors, and including Rhododendrons, Camellias with the black-green leaves that gardeners like to see, *Acacia dealbata*, *Fatsia japonica* represented by a candelabrum-like arrangement of branches of ivory-white colour, bearing at the end globular heads of berries like those of the Ivy, *Ilex Perado* with its bright green obovate leaves and abundant stalked flowers, its relative *I. dipyrrena* with narrow lanceolate leaves and dense clusters of nearly sessile greenish flowers, *Vaccinium ovatum* with branchlets spreading nearly at right angles to the stem, and small, nearly sessile, deep green leaves, the flowers axillary pendulous, *Drimys Winteri* with red shoots and lanceolate deep green above, pale beneath, and terminal panicles of greenish flowers, specially interesting to the botanist; *D. aromatica*, with much narrower leaves but otherwise similar; *Pittosporum bicolor*, a small tree with narrow, rosemary-like leaves, and solitary, axillary, pendulous, somewhat bell-shaped flowers, with recurved sepals and petals tinged with red. The tree is 22 feet high, 12 feet through, with a girth of 12 inches at the ground level.

THE ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—At a meeting held on Wednesday, 16th inst., appointed Mr. P. MURRAY THOMSON, S.S.C., their secretary and treasurer, out of seventy-eight applicants. Mr. THOMAS GORDON, County Rooms, Edinburgh, was in the final vote with him, and lost it by one vote.

PUBLICATIONS RECEIVED.—Royal Botanic Gardens, Glasnevin, Dublin, *Seed List*.—Supplement to new creations, Fruit and Flowers, LUTHER BURBANK, Santa Rosa, Sonora County, California. In this are offered "Apple," "America," and "Charles" Plums, the Pearl Prune, hybrid Walnut Paradox, surpassing all others in rapidity of growth, and recommended as a timber tree; hybrid Walnut "Royal" produces nuts in abundance; Rose hybrid "Bourbon Tea."—*The Amateur World of Horticulture*. This is the "Record of the Proceedings of the National Amateur Gardeners' Association" for October to December, 1897, and gives a satisfactory record of progress.—*Transactions of the Royal Scottish Arboricultural Society* (vol. vx., Part II.) contains the President's Address; Forestry Education, by Dr. W. SCHLICH; Forestry in Scotland in the Reign of Queen Victoria; Experiments with Tree-seeds, and other papers of interest.—*Excursions of the Royal Scottish Arboricultural Society*. These excursions were made to Dublin, Powerscourt, Coolattin, Carton, and Killarney, and to Dolphinton, in 1897. The record of them is not merely pleasant reading, but has a present value, likely to increase with time, in that the dimensions are given of many of the more noteworthy or famous trees visited. As these measurements are not mentioned casually but carefully tabulated, it will be comparatively easy for future generations to make similar observations and test them by these standards of comparison.

ORCHIDS AT OAKWOOD, WYLAM.

BEAUTIFUL as are the many fine hybrid and cross-bred Orchids raised by Norman C. Cookson, Esq., assisted by his gardener, Mr. William Murray, the fine show of beautiful flowers of the Popayan varieties of *Cattleya Trianaei* now giving brilliancy to the Cattleya-house at Oakwood, causes one to imagine that among Orchids, either of hybrid origin or in species, nothing can be found to equal them for showiness. The flowers noticed vary from pure white with a faint blush of colour on the lip, to white with purple blotch; and some few are almost entirely of a bright pink colour, though the majority belong to the dark, richly-coloured forms, and of these the hue of the lip varies from crimson to ruby-red and purple, the edge being generally prettily crimped and margined with white. About these plants Mr. Cookson relates a curious experience. They flowered last year for the first time, and although the flowers were passable, they were considered to be nothing remarkable. But as many of the *Cattleyas* did not thrive to his satisfaction, Mr. Cookson resolved to alter his treatment, and he began by raising the plants nearer to the roof-glass, affording more ventilation, and making alterations in the method of heating, with a view to securing a more even temperature, and the house fitted with wood-lath roller blinds, besides a few other points that were attended to. The result has been that the plants which appeared unsatisfactory last year are now in magnificent health. The *Cattleya* show is being followed by a display of the hybrid *Dendrobiums* raised on the place, the first to open its flowers being the handsome *D. × Owenianum*, the clear white, and dark purple-hued *D. × Murrayi*; the soft rose-coloured *D. × Dulce*, Oakwood variety; *D. × Harold* and *D. × Sibyl*, two very bright and profuse-flowering kinds; *D. nobile* Cooksoni, and others of these curiously varied plants. Of the species of *Dendrobium* which are not considered free growers, but which here seem only in danger of flowering themselves to death, were noted, *D. Johnsoniae*, *D. atro-violaceum*, and *D. McCarthyi*, the last named being one of the first plants bought by Mr. Cookson, and it grows and flowers still very freely, and has had the additional strain of seed-bearing to endure on several occasions.

Of the new things in flower the finest is *Phaius × Norman* (*P. Sanderianus × P. tuberosus*), which is even handsomer and larger than *P. × Cooksoni*, especially the lip. Three crosses, obtained from different parents, are represented in the batch. Some of the plants possess flowers of a large size, with chrome-yellow sepals and petals, over which a very peculiar salmon-coloured shade spreads; some have cream-coloured sepals and petals; and some are rose-coloured, with the base of the lip in each case of a reddish-purple veined with yellow, and the front portion of various shades of rose and purple, varying in intensity in the various flowers, but always attractively arranged. The old plant of *Phaius tuberosus*, which has supplied the means of securing this variety in the colouring, and the other fine crosses, still maintains its vigour unabated, though in most gardens the plant is considered, and found to be, one of the worst plants to cultivate successfully for any length of time.

Among the *Cypripediums* a handsome hybrid between *C. Spicerianum* and *C. Fairieanum* is flowering; also *C. × Io × Fairieanum*; a number of the fine *C. × Calypso*, Oakwood variety; *C. × Juno*; the beautiful *C. × Ceres*, and *C. × delicatulum*, all three first raised by Mr. Drewett; *C. × alnum*, *C. × Cyrus*, *C. × vexillarium*, and two singular pallid forms, the one of *C. × Godseffianum*, and the other of *C. × Pitcherianum*, both seedling varieties. The hybrid *Calanthes* exhibited a goodly number of plants in flower, the best of which are *C. × Sibyl*, pure white; *C. × splendens*, carmine-crimson; *C. × Wm. Murray*, a large cream-white flower, with maroon blotch; *C. × Bryan*, and *C. × Phæbus*, a very large and richly coloured flower of the *C. × Veitchi* section. Of the hybrids of *Phaius* and *Calanthe* that are in flower, there were noted *Phaiocalanthe × grandis* (*P. grandifolius × C. Bryan*) with a vigorous

spike of showy bluish-white flowers, having a dark claret-hued face to the openly displayed lip; and the fine *Lælio-Cattleya* × *Doris*, whose rich yellow flowers and rose-purple tip to the lip always receive attention. The varieties of *Lælia anceps*, I was informed, have flowered unusually freely this year; and, as in some other gardens, some grand forms of the *L. a. Schroderiana* section have been noticed.

The warm-house contains a small collection of *Phalenopsis* that is doing well, and some of the *P. Schilleriana* are in flower; also some fine specimens of *Coelogyne cristata alba*, *C. c. Lemoniana*, and other varieties.

The occupants of the *Odontoglossum*-house are in their usual vigour, and as a proof that they are not degenerating, the rare spotted kinds are steadily increased, the handsomely-blotched *O. crispum* Cooksoni, numbering eight plants, all of which were propagated from the original plant. Plants of other fine varieties of *O. crispum*, *O. Pescatorei*, and others are in bloom; and among the *Maedevallias*, *M. × Courtauldiana*, *M. Shuttleworthi*, *M. Veitchi gigantea*, and others appear.

In a cold frame, a fine display of seedling *Hellebores*, covered with flowers, and which Mr. Cookson considers quite the best tolerably hardy flowers of the season, was remarked. Evidences of the earliness of the season were noted in quantities of *Primroses* and other spring flowers.

BELGIUM.

THE BRUSSELS ORCHIDÉENNE.

At the meeting of this Society, held on Feb. 13, there were shown as many as eighty-five Orchids. Among them were specimens of *Cattleya Trianaei* and *Odontoglossum* from MM. Lucien Linden & Cie. of Moortbeke, and from L'Horticulture Internationale. The most splendid *Cattleya*, which obtained a First-class Diploma of Honour, *par acclamation*, was dedicated by M. Linden to his late father, and named *C. Trianaei memoria Lindenii*. The plant is remarkable for form, and rich and velvety colouring, and resembles *C. Imperator*, though differing from it in some respects. The lip is especially noticeable for the deep uniform purple colouring, distinct and difficult to describe exactly. Many other fine varieties of *C. Trianaei* gained Awards.

Among the *Odontoglossums* was *O. sulphureum*, which gained a First-class Certificate *à l'unanimité*. It bears a very long branching raceme, with many flowers, which are white, edged with sulphur-yellow, and slightly speckled. Another novelty of the *O. Ruckerianum* class is much speckled, and has a large marking on the lip, a variety of *crispum*, has very close flowers, much crimped and united in a dense cluster.

From Moortbeke and Brussels came the following plants:—*Mesaspindium vulcanicum grandiflorum*, a very fine variety of unusual colouring; *Oncidium Phalenopsis*, three forms, one with white flowers, much speckled on the three superior divisions, and slightly on the base of the lip; another with a lilac lip, very curious; and the third with, on the superior sepal, one very dark spot delicately edged with white; the other divisions much spotted, the lip pure white. *Lælia præstans alba* (First-class Diploma of Honour), has a spreading flower, pure white, lip pale lilac-rose at the top.

There were also some five varieties of *Cypripedium* Victorie Marie, *C. Argus*, prettily marked, wide petals, with numerous large spots; *Saccolabium giganteum album* (very white); *Eulophiella Kegel-jani* (First-class Diploma of Honour), a curious and charming novelty, flower triangular, of an apple-green colour, marked with concentric lines.

The Comte de Bousies sent a vigorous specimen of *Miltonopsis Bleuana* var. *nobilior* with eight large and handsome flowers, and seven buds borne on three clusters (Diploma of Honour *par acclamation*).

M. Miteau exhibited a good variety of his *Cypripedium Pauli*, named *eximium*.

M. du Trieu de Terdonck obtained a Diploma of

Honour for *Cypripedium Spicerianum* × *Boxall atratum*, much admired by specialists.

M. de Lombærde showed some dark varieties, the most velvety were like *Lælia anceps* (Diploma of Honour).

M. Florent Pauwels showed *Odontoglossum Warszewiczii*, always rare; *Lælia anceps alba*, a good variety, with a large fine white flower; and *Odontoglossum Rossi majus*, with flowers nearly four inches across. M. Arthur Morren (brother of the late M. Edouard Morren), sent a pretty *Cattleya Trianaei* albescens with a slightly rosy lip.

THE BELGIAN ORDER OF LEOPOLD.

The following have been lately promoted to the rank of officer of the Order of Leopold: MM. Cartuyvels, Minister of Agriculture; H. Van Hulle, Honorary Professor at the Ghent École d'Horticulture; and Ch. Van Wambeke, President of the Vigilance Committee of the said École. The following have been made Chevaliers of the Order: MM. Giele, Director of the Louvain Botanic Garden; Griffon, Professor at the Tournai École d'Horticulture; Jules Hye-Leysen, nurseryman of Ghent, and Sels nurseryman of Duffel. *Ch. De B.*

NURSERY NOTES.

MESSRS. J. CHARLESWORTH AND CO.,
HEATON, BRADFORD.

So rapid has been the progress of hybridising Orchids in this nursery, that a large part of a block of houses has been set aside for cultivation of the seedlings, and another range erected in order to afford space for the large number that are approaching a flowering age. The numerous array of minute plants, each mounted on its stand, and carefully labelled, present the orderly appearance of battalions of soldiers.

No crosses likely to produce indifferent results are carried out, and only the best varieties, and where possible with plants not previously used, are crossed. *Lælia Digbyana* has been crossed at Heaton with many showy and some very dissimilar species, and a few plants of most of the crosses made have resulted. *Epidendrum radicans* also has received much attention and crosses with it, and various species of *Cattleyas* and *Lælias*, are approaching a flowering age. As was remarked by Mr. Veitch, most of the widely different species crossed with *Epidendrum radicans* produce plants that closely resemble the pollen-parent in growth, which curiously differ from the seed-bearer. Among the experimental crosses are plants whose parents were so very unlikely to give good results that the raiser scarcely cares to mention their names before the flowers have been produced.

Among the showy imported Orchids is a very fine group consisting of a good type of *Cattleya Trianaei*; a grand lot of *Cattleya aurea*; a number of compact plants of the best large-flowered type of *C. Mendeli*; a still greater number of *Cattleya Mossiae*, which although imported only a year ago are without an exception about to flower profusely.

In the *Dendrobium*-house the plants showed much vigour; and in flower we noticed the handsome-looking *Dendrobium* × *splendidiissimum* *Leeanum*; several good *D. × s. grandiflorum*, and other varieties of the *D. × Ainsworthii* class; fine varieties of *D. nobile*, of which the natural hybrid *D. Rolfeae* has made marvellous flowering growths; *D. × Cassiope*, and hybrids of it; *D. Wardianum*, and many other species. In one of the houses was a small batch of white-flowered *Cattleyas*, viz., *C. Mossiae* Wagneri, *C. Gaskelliana*, &c.; in another we remarked a selection of fine varieties of *Odontoglossum crispum*; some large plants of *Miltonia Eudresii*, *M. Phalaenopsis*, and one of *M. vexillaria* *Leopoldi*; and in another a large number of *Odontoglossum cirrhosum* and other species of *Odontoglossum* was in bloom, as well as a smaller number of *Oncidium macranthum*. Other plants observed were *Lælia purpurata*, in sheath; *Vanda cœrulea*, *Lycaste Skinneri*, *Brassia*

Lawrenceana, fine varieties of *Lælia anceps*, a fine lot of hybrid *Cypripediums*, and handsome varieties of *C. Charlesworthii*, *C. Rothschildianum*, &c.; a few fine plants of the rare *Cymbidium grandiflorum*, and the dwarf *C. tigrinum*; the curious *Pleurothallis Roylei*, with racemes of large blackish-purple flowers, the handsome *Maedevallia Winniana*, and other *Maedevallias* of the *Chimera* section, also many curious Orchids and other plants. The singular looking pitcher-plant *Heliamphora nutans* was noted among the latter. The nursery is compact and well kept, and anything likely to be of benefit to the plants seems to be put into practice. At the present time the floors or walks of the houses are being put in good order, and the flooring-tiles are being removed and shingle used in its place.

TREE-PLANTING ON HAMPSHIRE HEATH.

THE Parks and Open Spaces Committee of the London County Council have just issued a report with reference to their action in planting trees on certain parts of Hampstead Heath. They point out that a scheme for planting Parliament Hill, the East Park, and part of Hampstead Heath, east of Spaniards Road, was approved by the Council, and carried out during 1895 and 1896. Objection having been made to the trees planted near the Willow Road and the Spaniards Road, on the ground that as they grew they might obstruct the views towards Highgate and London, the committee pointed out to the objectors that the trees near the Willow Road were intended to take the place of Willow-trees planted by the lord of the manor forty years ago, which were fast decaying, while those near the Spaniards Road were ornamental, and were intended to check the scour of the fine sand which, owing to the decay and disappearance of the coarse grass and Gorse on the steep slopes between the road and the Vale of Health, washed down in great quantities after rain and choked the storm water-pipes. Trees of light foliage were here preferred, such as Birch and Mountain Ash, which would not interfere with the growth of Gorse, Broom, and Briar. In planting the trees, care had been taken not to interfere with vistas and distant views. On visiting the heath last autumn, the committee found that while 1190 trees were planted under the scheme on the East Heath, and 994 on Parliament Hill, 49 had died and been removed, and 23 had been transplanted to meet the wishes of residents. The Fir plantations on the heath, planted by the Metropolitan Board of Works about 1870, were also being thinned, and about 100 trees removed east of the Spaniards Road, and about 90 trees on the west and north-west heaths. The subsoil of Hampstead Heath consisted principally of fine Bagshot sand, and, owing to the increased use of the heath, and the consequent wearing away of the coarse grass and Gorse, it had been found very difficult to preserve the undulating character of the Heath. Where the sand was exposed, every storm washed considerable quantities of it from the hillocks into the hollows. The best way of checking this scour of the sand was to plant suitable trees and grasses where the gradients were steep; and it was in order to encourage the growth of Gorse that they were advised in 1895 to cut out the dead wood in the Gorse plants, which were blackened and sickly owing to the severe frost. It was a mistake to suppose that trees were not suited to Hampstead Heath, as they had always flourished there, and they afforded food and shelter to song birds, which were now found to be returning to the Heath owing to the operation of the Wild Birds Protection Act. *Times*.

ALLOTMENTS AT EYNSFORD.

SPEAKING at a technical education meeting at Eynsford (Kent) recently, Mr. E. D. Till explained that, although there was a most interesting exhibition in an adjoining room, the interest of the evening chiefly centred around the Cup given by Mr. H. M. Pollett, because it commemorated William Howard's sixty years' tenure of his Eynsford allotment. All were deeply indebted to Sir Percival Hart Dyke, Bart., the grandfather of the present M.P., for initiating the allotment system in Eynsford. They were also indebted to the public spirit of Mr. Pollett for bestowing the Silver Cup; but, after all, it was the enterprise and industry of William Howard which attracted hearts that evening. Although the Cup records the jubilee period of sixty years, it was nevertheless sixty-six years since Howard trenched his allotment. He planted his Winter Queening sixty years ago, and the sieve of fruit now before them was but a small sample of this year's crop. Mr. Till said he could not do better than quote Howard's own words, which quaintly connected cause with effect, in reference to the Winter Queenings: "If I hadn't a' planted that 'ere tree, shouldn't a' had all this here fruit!"

Mr. Cannell congratulated Mr. Howard on his long and successful tenure. What an amount of pleasure and of profit, physical and mental, said the speaker, must the cultivation of this allotment have given to Howard in the course of so many years! What wholesome food for himself and his family! The very look of this veteran parishioner (see fig. 50) (said he) testified to the benefits of allotment culture. Mr. Cannell hoped that so excellent an example would not be lost upon the lads present, and that they in their turn would be able in their old age to reap, in one shape or another, fruit that never fails to result from sowing and planting wisely in youth. He had the greatest possible pleasure in now handing the handsome Pollatt cup to Howard, and, at the same time, paying a well-deserved compliment to the donor.

Mr. William Howard, in a few pathetic words, then said how thankful he felt to the donor, and to those present, for the honour they had done him. He spoke of his endeavour to treat his allotment well, and how he had regularly removed the earth round his tree, and treated it to a good dressing of manure.

Howard's youngest son (Elvey) then, on his own behalf, and that of his brothers and sisters, testified to the great pleasure this gift to their father occasioned them. He could remember well, many years ago, how that, in one especially hard winter the produce of his father's allotment had helped to provide most needful food for the family. His elder brothers had had to seek their livelihood outside the village, one as an inspector in the docks, and the other in the Army. The latter was at the gallant defence of Rorke's Drift, and is now enjoying Her Majesty's pension. Mr. Elvey Howard spoke with considerable effect on the advantages of technical education, and how he himself had reaped some of its benefits.

The following is the form of agreement between Howard and the landlord, Sir Percival Hart Dyke:—

"Sir Percival Hart Dyke agrees to permit the Persons now holding Slips of Land at the Parish of Eynsford, Kent, to continue to occupy the same so long as they comply with the following Conditions; but if any of the said Conditions cease to be complied with, the person so doing to give up the Land within Two Months after he has received notice to quit the same; being Paid for what produce he may leave behind him on the Ground, except in the case of Theft or Wilful Damage to any of his Neighbours, in either of which cases to be subject to immediate ejection without any remuneration:—

To Pay a Rent of Five Shillings Yearly, on the First day of June, half on the First day of October.

To Sufficiently Manure the Ground once in every Two Years.

Always to Sow a spot with Turnips Sufficient for the use of his family.

Never to commit any Damage on the Ground occupied by others.

Never to underlet any part or to make Sale of his own Produce to the injury of his Family.

Not to continue in the occupation of the Ground if he removes his Residence to a distance inconvenient for its cultivation.

Never to work it on Sundays.

Mark x of Wm. Howard,

Witness, A. Killick.

October 4, 1831."

HOME CORRESPONDENCE.

ROYAL GEORGE APPLE.—It is always a good thing to verify a statement, a quotation, or a fact. Very necessary is this in the case of the names of Apples, for a duplication or more of names for the same variety is little short of a nuisance, and it certainly makes confusion where there ought to be no mistakes. I therefore take the liberty of saying that to the best of my knowledge, the Apple Royal George, mentioned by Mr. G. Bolas in the *Gardeners' Chronicle* of February 19, p. 116, is identical with Clarke's Seedling, now being sent out by two of our Midland nurserymen, the Messrs. Pearson of Chilwell, and Mr. Merryweather of Southwell. The Messrs. Pearson in their list give it its alternate name in brackets, and possibly either Mr. A. H. Pearson or Mr. Henry Merryweather could tell us something of its history. My contribution to that history is this, thirty years ago, and for many years afterwards, I

was one of the judges at the East Bridgeford Horticultural Society's show, which is always held on the last Tuesday in June. Invariably amongst the dishes of Apples to be judged of those of "Last year's Apples," would be set up beautiful samples of this Royal George Apple, and on my making enquiries in the village concerning its origin, I was told that it was raised by a Mr. Clarke; and, indeed, I was taken to see the original tree with fruit then growing upon it. Hence therefore its birthplace is East Bridgeford, in Notts, and its raiser Mr. Clarke. East Bridgeford, though only a small village, is noted for early Potatoes and other market garden productions sent to the Nottingham market. The situation is high and dry, and the place stands well out of the valley of the Trent, and looks south-eastwards into the Vale of Belvoir. Whether the fertility of the soil there is due to the cultivation given to it by the Romans is, of course, a debatable question, but the village certainly stands on the site of the ancient Roman city of Margiddunum, and the old fosse-road from the south to the north (Bath to Lincoln and York) is only a mile or two away. *N. H. Pownall, Lenton Hall Gardens, Nottingham.*

STERNBERGIA MACRANTHA.—S. Arnott says, in *Gardeners' Chronicle*, p. 116, that *Sternbergia lutea*



FIG. 50.—W. HOWARD, AND THE SILVER CUP.

Presented to him after sixty-six years' tenancy of his allotment, and sixty-one years since he planted above Apple-tree.

(See p. 128.)

(From a photograph by J. Gregory Croydon.)

does not flower freely in every garden. In the Berlin Botanic garden it is a free-flowering species, which produces flowers every year in October in great masses, and as the flowers last till the New Year, it is a very valuable plant. Indeed, I found the flowers covered with snow without any harm. Where the plant does not flower freely, certainly it has no suitable situation. Mr. Arnott is quite right when he says that *S. lutea* requires a thorough "roasting" in summer. In our garden the bulbs are planted out in a light, rich, humous sandy soil, together with other Liliaceæ and Amaryllidaceæ. This place is quite open, so that the sun may shine upon it during the summer with all its power. In all such places *S. lutea* and also *S. macrantha* will flower very well. *U. D.*

FISH AS MANURE.—During the time I have been foreman in these gardens, a quantity of fish-refuse from a fishmonger's shop has been brought to the kitchen garden, and buried in trenches—in fact, the ground has been manured with it. Various crops have been grown, but I have never seen anything extraordinary about the results, only just an average crop. I should be glad of any information on this subject of manuring with fish. In digging, the bones turn up for several years, and the ground is filled for some time with grubs, which rooks and starlings are very partial to. If there is not much benefit to be derived from it, I would discontinue its use. *C. Blake, The Gardens, Charlton House, Old Charlton.*

THE ROYAL HORTICULTURAL SOCIETY'S AWARDS.—The literally vital importance of this question to the Royal Horticultural Society, seems to be little understood. The particular form of the direction sent down to the committees by the Council on February 8, may have been ill-judged, but it was obviously intended as nothing other than a practical emphasizing of the opinion concerning the Society's awards already expressed, with the most conciliatory moderation, in the annual report. This report had been in the hands of every committee-man for some time previous to February 8, and should have served as an interpretation of the Council's directions to the committees, and prevented any offence. It is greatly to be hoped that the entire Society will support the Council in its general and most true contention, that the awards have been far too lavishly bestowed. In the one year 1897-98, no fewer than 531 medals were awarded. It is not saying too much to assert that half this total would exceed what should be given annually if a Royal Horticultural Society medal is to be a real token of unquestionable excellence. The same thing may be said of the Awards of Merit—346 in a year is a number which robs the award of all valuable significance. Periodically there is made in the press an onslaught on the Royal Horticultural Society as being, in fact, little more than a very flourishing Metropolitan Florists' Mutual Admiration Society. To rebut this charge, the Council has of late made earnest efforts to extend the Society's operations to the provinces, and there are glimpses of such a field opening out as may enormously increase its usefulness. But unless measures are speedily taken to restrict this suicidal cheapening of the Society's Awards the old reproach will be justified, and little store will be set, a field, on prizes which are so easily gained at home. Of course, there are difficulties. It is no secret that the commonly whispered reply to the critic is—"Oh, yes, all very true, but then we have the trade to consider; if we give fewer medals we shall offend the trade, and where should we be without the trade?" In short, the vicious circle once complete, the Society is to trudge round in it for ever. Is it true, after all, that by restoring to the Awards their proper efficacy of recognition of true distinction we should offend the trade? The trade have a most excellent subscription's worth in the simple advertisement of what may be called their ordinary wares once a fortnight in the Drill Hall, and there is little fear of their withdrawal if they did not on every occasion receive the Award of Extraordinary Merit for what are very good wares, but not always extraordinary. I have many friends among the trade, and may perhaps claim to know enough of their views on this point to feel assurance that few of them would resent a very considerable restriction of these awards. I was recently shown by one nurseryman a whole drawful of medals, with a gesture of little less than contempt. On another occasion I urged a rising provincial florist to exhibit his specialty at the Royal Horticultural Society meetings, as he would undoubtedly obtain awards. His reply was—I remember his precise words—"Of what use is it to me to get a medal that any one can get by showing any kind of stuff, if he shows enough of it?" This was no doubt an exaggeration; nevertheless it represents a truth, and a truth that is very clearly perceived by a large public outside the Royal Horticultural Society. The Society is, or should be, essentially an educational Society, and the first requisite for every educational Society is that its standard must be a high one. Its numbers and finances may be augmented, and its members pleased all round, by acquiescence in a low standard, but the acquiescence will admit the seeds of ultimate decay. It was a comfortable and flourishing class of private school which sent every boy home with a handsome prize, but not the class which endured, or raised the education of the country. To philosophize in this way does not solve the practical difficulties which face the committees in effecting the reduction, nor am I now attempting the solution, but only pointing to the deep importance of the issue, and urging every member of the Royal Hort. Soc. to support the council. If this support is given, a satisfactory solution will certainly be found. *A. B. C.*

— "The Council must again express their opinion that there still appears to be a tendency to multiply unduly the awards recommended, and they earnestly request the several committees to consider seriously whether there is not a real danger of impairing the value of these distinctions by such increase of their number, and whether it would not be possible as well as politic to be somewhat less generous in recommendation of awards during the ensuing year." The above is part of a paragraph

quoted from the report of the Council for the past year. From the same report I find it stated that there were twenty exhibitions of fruit and flowers held at the Drill Hall, Westminster, and that fifteen committee meetings were held at Chiswick Gardens. It is well known to those who have the privilege of attending these meetings at the Drill Hall, that each meeting has now become not a dry and technical gathering, convened specially in order that experts may examine, criticise, and report upon some new or rare plants or fruit put before them. It is true the meetings are all this; but they are a great deal more. Each meeting can become a veritable flower-show, none of them of large proportions, and all of them full of interest and instruction; and as far as educational influence bearing on the higher aspects of horticulture, there are no exhibitions in the kingdom to compare with them. The Floral Committee alone had, I believe, over 1200 distinct and meritorious subjects placed before it in the course of last year, every one of which, in the opinion of the exhibitor, being deserving of the highest award. Without agreeing with this, I venture to say, as not an infrequent attendant, that the best of most things, whether new or old, finds its way to the Drill Hall at one time or another. It has not been publicly stated that the cost of these awards are any bar to their being granted; but I would like to draw your readers' attention for one moment to the cost to the Society of the awards made to the various subjects exhibited at these twenty meetings at the Drill Hall, and the fifteen committee meetings at Chiswick. It is £371, not mentioning odd sums, scarcely the amount given at one good provincial show, which only works out at about £10 12s. for each meeting. Surely, on the score of cost, no demur can reasonably be made by the council, or by anyone else. All of these thirty-five meetings put together only cost about one-half as much as the Temple Show, or what is spent on the *Journal* of the society, the latter costing £608. I submit then, that on the score of cost, the case against the medals and awards must be abandoned. Now, what about the plea of the danger of impairing the value of the distinctions conferred by their too liberal bestowal as contended by the council and others. I know full well that the council have perfect confidence in its committees, and appreciate their services to the full, and I also know with what care each member is selected for his skill and eminence in the work of the committee upon which he is selected to sit. It is almost superfluous to say that there is not a gentleman on any of the committees who would recommend any exhibit for an award which, in his opinion, did not justly deserve one on its merits. Granting, then, that the qualifications of the members of the committees are beyond reproach, I submit that it is next to impossible for them to err in making their awards; and if they do err, where is the body coming from which is able to impeach and rectify their judgment? If the awards are not to be made in accordance with the judgment of the various committees, on what other principle, may I ask, are they to be made? If a departure is thought necessary, I see nothing for it but to adopt the retrograde movement of giving points instead of awards, as suggested by a correspondent in one of your contemporaries last week. This would effectually lessen the number of awards, and, as I believe, the number and value of the exhibits as well. The members of the committees seem to have had a rather hard time of it lately. I see it is advocated in some quarters that members should be compelled to vote on every subject placed before them, whether they liked it or not. I hope the Council will not listen to this unwise suggestion, for if there were a mechanical rule made, it would remain a dead letter from the first, as no member of a committee could be compelled to vote if he did not think well to do so voluntarily. On the whole, the committees do their work well, and deservedly command and receive the confidence and approval of British horticulturists generally; and the Council, in my humble opinion, will be well advised "to let well alone." The one chief cause for the increase in the number and value of the awards is to be found in the increased number, and in the improved quality of the exhibits brought before the Society, and for this, if there is blame to be attached, the Society itself is responsible. The Society is growing in popularity, wealth, and usefulness, and whilst these conditions continue, so will its exhibitions improve in quality and increase in extent, and, as a natural consequence, its awards also. *Looker On.*

LAUDANUM.—Rev. C. Wolley Dod (*Gardeners' Chronicle*, Feb. 19, p. 116) says that the biographer

of Paracelsus attributed to that physician the introduction of opium into general use. Opium, however, was known and used probably many hundreds of years B.C.; the metaphorical expression of Jeremiah (viii, 14), "He hath put us to silence and given us the water of gall to drink," would appear to refer to the well-known effects of opium; gall being in Hebrew, *rôsh*, a "head." Theophrastus, in the third century B.C., knew it under the name *Mecconion*, and Pliny (*Nat. Hist.*, xx, 76) described how opium was extracted from Poppyheads and made into lozenges. He, too, speaks of its soporific and fatal effects. Matthæus Sylvaticus (A.D. 1480) speaks of several kinds of opium; but opium simply is always that of the Poppy. Salmon, in his *English Physician* (A.D. 1693), describes several sorts of "Laudanum," with or without opium, as an ingredient in opposition to "the true extract or spirit of opium," made from choice samples. The imaginary derivation from "laudandum," to be praised, is given by Thicnesses in his *Treatise on Vegetables* (A.D. 1749, p. 387) as follows:—"Prepared opium is called in the shops *laudanum*. This name was first given it by Paracelsus, from the word *Laudandum*, as being a medicine which deserves praise. The fact is, that *laudanum* is the Spanish form of *Labdanum*. Minshen's *Spanish Dictionary* (A.D. 1623) has "*Laudans*, the gum *Labdanum*, used in pomanders," *ab* becomes *av*, then *au*. The word itself is Persian, and occurs in Pliny, but the transference to the opium of the Poppy appears to have taken place in the fifteenth or sixteenth century. Perhaps Paracelsus, who lived in the fifteenth century, adapted the word to the opium. *George Henslow.*

PLANTS IN BLOOM IN THE OPEN AIR, ST. VALENTINE'S DAY.—In a lady's garden in the midland counties the following plants were in bloom at the date given above:—Twenty varieties of *Helleborus*, red, white, green, purple, and cream coloured; *Milla* (*Triteleia*) *uniflora*, white; *do.*, blue (changed by heat); *Rhododendron dauricum*, *R. præcox*, *Clematis calycina*, on wall; *Forsythia Fortunei*, on wall; *F. suspensa*, border; *Lonicera fragrantissima*, wall; *Chimonanthus fragrans*, wall; *Jasminum nudiflorum*, wall; *Daphne Mezereum* and the white variety, *D. laureola*, *Cornus mas*, *Laurustinus*, *Cydonia japonica* (wall), *Spiræa Thunbergii*, *Berberis fascicularis*, *B. japonicus*, *Hamamelis arborea*, *Erica codonodes*, *E. herbacea carnea*, *E. h. alba*, *Erythronium* in variety; *Crocus*, in beds, all colours, "Thackeray" very fine; *Snowdrops* in variety, *Anemone blanda* (green), *A. fulgens*; white *Hyacinth*, in full bloom; *La Tour d'Auvergne*, as early as the forced bulbs; *Hepaticas*, four varieties; *Megacra Saxifrage*, two varieties; *S. oppositifolia major*, very effective; *Chionodoxa Lucilia*, *C. sardensis*, *Scillas taurica*, *passiflora*, and *sibirica*; *Bulbocodium verum*, *Omphalodes verna*, *Vinca minor*, blue and white; *Symphytum orientale* (white Comfrey), *Pulmonaria sibirica*, *Narcissus minor* (Daffodil), *Primroses*, all the winter; *Potentilla alba*, all the winter; *Muscari*, *Hyacinthus botryoides* and *H. neglectum multiflorus*; *Aubrietias*, two varieties; and *Arabis procera*, *H. M. G.*

FREESIAS.—Mr. Kerry, writing on these plants in the *Gardeners' Chronicle* on the 12th inst., asks readers of the paper to tell him the greatest number of flowers which have been produced on a scape. I have grown *Freesias* abroad for the last three years, with the following results. The bulbs to which I refer were grown in the open ground, and as such, the results are better than those cultivated in pots. Their habit of growth under out-of-door conditions is much sturdier, and the tendency of the flower-spike to branch much more marked. I make out that *Freesia Leichtlini* major is more floriferous, and gives more flowers on a scape than *F. refracta alba*. Maximum number of flowers on a scape, 17; average number of flowers on fair-sized bulbs, 12 to 15; maximum number of flowers from one bulb, 136; average number of flowers, 70 to 110. The bulbs had from 7 to 10 laterals. In the case of the bulbs which gave 136 flowers, the flower-spike seemed to divide into two, almost from the apex of the bulbs. *W. H. Wallace.*

LILIUM AURATUM.—We have dug up this winter, at Oakwood, some large beds of *Lilium auratum* which had not been disturbed for ten years; many of the Lily stems were browned by a hard frost late in last May, which lasted all night. We found many fine bulbs, and more small ones, from large bulbs having broken up. We found also a good many cockchafer grubs, and a greater number of a long white narrow grub, which an eminent entomologist

tells me "are the grubs of the small Swift-moth (*Hepialus lupulinus*), a destructive creature of anything underground." After this experience, I would advise examining parts of large Lily-beds every winter so as to be sure that grubs are not present in quantity. *Geo. F. Wilson.*

BRITISH NURSERYMEN AND ENTERPRISE.—With reference to the invitation, on p. 53 of the *Gard. Chron.*, to the leading seed-growers of the country to furnish information as to the work of English producers of seeds abroad, permit me to say that my house has for upwards of half-a-century been engaged in exporting seeds to all parts of the world. I publish seed catalogues in French, and my representatives are actively engaged in travelling in that country, as well as through the United States. I have recently dispatched a consignment of seeds for His Imperial Majesty The Emperor of Japan. Notwithstanding the heavy import duty imposed on English-grown seeds by some countries, and the great obstacles placed in the way of trade by others, I have every hope that English seed-growers will not only hold their own but prove to the world that English seeds are unequalled. *John K. King.* [This correspondence must now cease. En.]

GROS COLMAR GRAPES.—The well-ripened bunches will keep sound for a long time with the ends of the shoots inserted in bottles nearly filled with rain-water, if not kept too dry and warm. I think a Grape-room should not be so warm and dry as to cause shrivelling, and I have had bunches of Lady Downe's Seedling in splendid condition in an average temperature of 40°, and even a degree or two lower. Bunches of Grapes that are kept in a very cool place should be placed in a warmer temperature before partaking of them, the berries, on removal to a warm room, having a hazy appearance. As showing how Gros Colmar Grape varies in quality under cultivation and soil, or both combined, I was instructed to send some cuttings of a Vine of this variety growing at Mereworth to be propagated and planted elsewhere in a new range of vineries, and the difference was so marked with regard to the skins and flavour, that the late Lord Falmouth was somewhat loth to believe that they were raised from the Mereworth Vines. *H. Markham, Northdown, Margate.*

PASSIFLORA EDULIS.—This plant is largely cultivated in Australia, and the fruits appear in all fruiterers' shops. Some persons eat it with cream, as we eat Strawberries. It is grown on trellises and over porches, in which positions the plant has a nice appearance, as also when trained over a continuous arcade along a garden-walk. If an espalier be shaken, the ripe fruits only drop to the ground. I am cultivating the plant out-of-doors in a sheltered position, and hope to have some success to record this year. *Frank Lilley, St. Peter's, Guernsey.*

THE MILDNESS OF THE SEASON AT BELVOIR CASTLE.—January was one of the most remarkable months of recent years, the mean temperature at this place was 41°, as against an average mean of 35°, which was therefore more like that for the month of March. Many tender plants commenced to grow and flower owing to the unusual increase in temperature. Tea Roses on the castle walls made young growths 6 inches in length before the end of the month, as did also that beautiful shrub *Photinia serrulata*, and the twining *Muehlenbeckia complexa*—the latter is a native of New Zealand, and was much injured here in the severe frost of February, 1895. Gloire de Dijon and crimson China Roses have not ceased flowering since last May. *Chimonanthus fragrans* and *Lonicera fragrantissima* were full of flower by the middle of January, and *Ceanothus azureus* has continued in flower throughout the winter. *Acacia dealbata*, *Melianthus major*, *Eucalyptus globulus*, *Centaurea candidissima*, and *Cineraria acanthifolia*, have survived outside since May, 1895, and *Albizia lophantha*, *Eupatorium odoratum*, and *Grevillea robusta* have lived since May last, in the open air unprotected. *Prunus Piesardi* commenced flowering on January 31, *Doronicum excelsum* on January 23, but only four inches high instead of three feet, as if expecting the cold winds of March. *Anemone fulgens* commenced on the 15th, and has since yielded hundreds of its beautiful scarlet flowers. St. Brigid's strain of *Anemone coronaria* has also proved this year a very useful flower for cutting. The double-flowered Violet, Lady Hume Campbell, has been flowering from the beginning of winter; as have the beautiful Harbinger Primroses, raised by the late Mr. R.

Gilbert of Burghley House. All of the plants in the spring flower-beds are unusually forward. The flower-buds of Camellias and Himalayan Rhododendrons which have flourished outside here for many years, are fortunately not much advanced, and this is fortunate, for we do not know what is in store for us in the matter of weather. *W. H. Divers, Belvoir Castle Gardens, Grantham.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

FEBRUARY 10.—The meeting of the above Society was held in the Coal Exchange, Market Place, Manchester, the following members of the Committee being present:—Messrs. W. Thompson (Chairman), J. Cypher, W. Stevens, G. W. Law-Schofield, J. Leemann, W. Bolton, S. Gratrix, R. Johnson, W. A. Gent, J. Backhouse, H. Greenwood, and P. Weathers.

Both in point of quantity and quality the meeting was an excellent one, and no fewer than seventy-eight subjects were dealt with by the committee, seventeen of which received First-class Certificates, and thirty-one Awards of Merit.

From Mr. G. W. LAW-SCHOFIELD (gr., Mr. Schill) came *Cypripedium* "G. W. Law-Schofield," a charming hybrid the parentage of which is unrecorded, but *C. bellatulum* was undoubtedly used in its raising, the whole flower was a rich purplish colour, and well formed (First-class Certificate). *Cypripedium lathamianum* giganteum (Award of Merit), *Dendrobium* × *June* (Award of Merit), (*Wardianum* × *Findlayanum* and *Dendrobium* × *xanthocentrum* (Ainsworthii × *Findlayanum* (First-class Certificate). Mr. T. B. RAPFART, Lisard (gr., Mr. Nicholson), sent *Dendrobium* × *Schneiderianum*.

Mr. T. STATTER, Whitefield (gr., Mr. R. Johnson), sent *Cypripedium villosum* giganteum, a splendid form of the type, and certainly well named (First-class Certificate). *Dendrobium splendissimum* grandiflorum was well shown, and received an Award of Merit. *Dendrobium splendissimum* giganteum from the same collection was very fine, and is of very great distinction (Award of Merit). *D. nobile* Amesie, the charming variety with white segments, now so well known, received a First-class Certificate. *D. Schneiderianum* received an Award of Merit.

Mr. H. H. BOLTON, Newchurch (gr., Mr. Eastwood), exhibited *Dendrobium* × *Rainbow* (*Findlayanum* × *Ainsworthii*), and it was much admired by the committee, who voted it an unanimous First-class Certificate. *Dendrobium nobile* var. *burfordiense* came from the same collection; it is a variety with the two lower sepals splashed with purple, and is distinct (Award of Merit). Mr. S. ALLEN, Sale, exhibited a good form of *Cattleya Trianaei*.

Mr. W. THOMPSON, Stone (gr., Mr. Stevens), took premier honours, showing four plants, each of which obtained First-class Certificates; undoubtedly the finest thing was his *Odontoglossum* × *excellens* var. *spectabile*, a plant bearing a splendid spike of flowers, which were beautifully formed and well marked. *O. crispum* *condissimum* was also very fine, being an ordinary well-formed crispum, with the snowiest of white colour; the cultivation of this plant in particular excels anything the writer has seen, either at home or abroad. *Odontoglossum nebulosum* *candidulum* proved to be an exceptionally beautiful and distinct variety, and deserved the recognition it gained. *Cattleya amethystoglossa* was shown in a splendid specimen, with a huge inflorescence.

Mr. J. CYPHER, Cheltenham, put up a few very nice plants, out of which the committee chose *Zygopetalum crinitum* superbum, *Cattleya Trianaei* Gratrixe, *C. Trianaei* superba, *Dendrobium Ainsworthii* (Cypher's variety), and *Dendrobium splendissimum* *leanum*, each of which gained an Award of Merit. Mr. J. ROBSON, Altrincham, exhibited *Cattleya Trianaei* bella, *Cattleya Trianaei* formosa, and *Cymbidium eburneum* giganteum, the latter receiving an Award of Merit.

Mr. T. SWINGURNE, Winchester (gr., Mr. Rendall), exhibited *Cypripedium* × *Mons. de Curto* (Swingurne's var.), an excellent hybrid, for which an Award of Merit was given; also a good plant of *Cypripedium villosum* giganteum, which, however, is not so well developed as Mr. Statter's.

Mr. J. LEEMANN, Heaton Mersey, made a fine display of good things, among which were *Lelia anceps* Williamsii (Award of Merit), *Cattleya Trianaei* alba (Award of Merit), *Dendrobium nobile* *Sanderianum*, in beautiful condition (First-class Certificate), *Dendrobium nobile* *Ballianum* (Award of Merit), *Cattleya Trianaei*, a very handsome and well-coloured form (Award of Merit), *Odontoglossum Andersonianum* var. (Award of Merit), and *Cultural Certificate* for a huge specimen of *Cypripedium Haynaldianum*.

Mr. O. SNORLAND BALL, Wilmslow (gr., Mr. Hay), exhibited a very fine form of *Cattleya Trianaei*, the purest of white, and it was awarded a First-class Certificate; *Dendrobium Wardianum* var. *ochroleucum*, a plant of sterling merit, and extremely scarce (First-class Certificate); *Dendrobium Wardianum* album received an Award of Merit. Mr. BALL also staged a pretty pair of *Dendrobium glumaceum*. Mr. HARRY GREENWOOD, Haslingden sent nice form of *Dendrobium Schneiderianum*.

Mr. S. GRATRIX, Manchester (gr., Mr. McLeod), put up a few nice plants, among which was a very fine form of *Cypripedium* × *Prewetti*, Award of Merit; also *Cypripedium* × *signatum*, a distinct and useful hybrid, Award of Merit; and a similar award was gained for *Dendrobium* × *enosum* *leucopterum*.

Mr. A. A. PEETERS, Brussels, exhibited a superb hybrid *Zygopetalum*, viz. *Perrenondi* (*intermedium* × *Gauthieri*), a decided acquisition to the large family of hybrids, First-class Certificate. A First-class Certificate was also given for a good *Odontoglossum Wilceanum*. M. PEETERS also sent a new *Sophranites* called *Roseterianum*, a small orange-coloured species which, when seen in a more advanced stage should prove interesting.

Mr. W. BOLTON, Warrington (gr., Mr. Cain), exhibited a good form of *Dendrobium Wardianum* album, for which a First-class Certificate was granted; *Dendrobium* × *Robinsonianum* (Award of Merit); *Cattleya labiata* var. *Boltoni*, a dark variety, splashed (Award of Merit); and a First class Certificate for a fine form of *Cattleya Trianaei*.

Mr. O. O. WHITLEY, Bury (gr., Mr. Rogers), gained an Award of Merit for *Cypripedium lathamianum* var. *aureum* giganteum.

Messrs. F. SANDER & Co., St. Albans, exhibited a splendid form of *Cypripedium* × *Fascinator* (Award of Merit); also a very interesting plant of *Lycaste Mooreana*, with flowers very suggestive of those of *Coleogyne pandurata* (Award of Merit). And the same firm received a First-class Certificate for a fine hybrid *Cypripedium*, unnamed, parents being *C. Calypso* × *villosum aureum*. P. W.

BOURNEMOUTH AND DISTRICT GARDENERS'.

FEBRUARY 15.—In the presence of a large number of members and friends, Mr. ARTHUR W. SUTTON, F.L.S., delivered a lecture on the above date, entitled "Potatoes Past, Present, and Future." In the absence through illness of the President (Mr. T. J. Hankinson), the chair was taken by Mr. A. Skinner, Highcliffe Castle Gardens.

A large number of lime-light illustrations, showing various species and varieties of *Solanum*, experiments in grafting and disease prevention carried out at Reading, and examples of some of the highest types of Potatoes in cultivation at the present time, gave additional interest to the lecture.

The subjecta remarked upon by Mr. Sutton were as follows:—The introduction of the Potato—Reference to the Potato by early writers—Various Tuber-bearing Species of *Solanum*—Gerarde's Description of the Potato in 1636—Area of Land under Potato Cultivation—Method of Planting, Raising, and Storing, 100 years ago—Implements used 100 years ago—Implements used at the present day—Deterioration and Improvementa—Disease Prevention—Bouillie Bordelaise—Raising Seedlings—Species and Varieties—Monetrotisities—Axillary Tuberculation—*Solanum Maglia*—Hybridisation—Modern Varieties—Grafting—Potatoes and Tomatos on one Plant—Conclusion.

CARDIFF AND COUNTY HORTICULTURAL.

FEBRUARY 21.—The Annual General Meeting of this society was held on the above date, under the presidency of Mr. W. C. PEACE. The following officers were appointed:—President, The Mayor; Vice-Presidents, Alderman W. J. Trounce, J.P., Alderman E. Bevan, J.P., Mr. W. C. Peace, and F. G. Treseder; Executive Committee, Chairman, Mr. A. E. Dixon; Vice-Chairman, A. W. Pike, and Messrs. A. M. Bailey, J. W. Boon, S. Medhurst, E. J. Harley, T. Ormes, C. Wightwick, with Mr. H. Gillett as Secretary. The Annual Show will be held on July 20 and 21.

NATIONAL CHRYSANTHEMUM.

FEBRUARY 21.—At a meeting of the general committee on the above date, a report stated that the position of certain new varieties of Chrysanthemums had been considered, and that the following were admitted as incurred varieties:—Austin Cannell, Ernest Cannell, General Mauric, Lady Isabel, Lyne Junior, Mdllc. Lucie Faure, Madame Ferlat, M. Desblanc, Owen's Crimeon, W. Carpenter, Yvonne Desblanc, and Mrs. N. Molyneux. The votes in favour of these being so classified were practically unanimous. Harold Wells and Sir T. Lawrence were, by small majorities, accepted as incurred. The subject of "too-much-alike" blooms, especially in the incurred section, was then considered, and a recommendation from the classification committee in relation thereto discussed, the object being to inform exhibitors that the blooms in classes for distinct varieties must be sufficiently diverse to be readily distinguished by the judges, or the stand will be disqualified. The report was afterwards referred to the classification committee that a list of varieties too much alike might be added.

A draft report of a decidedly optimistic character was read by the Secretary, and after a little conversation, was adopted in its entirety for presentation at the annual general meeting.

READING AND DISTRICT GARDENERS' ASSOCIATION.

FEBRUARY 21.—The fortnightly meeting of the above Association was held in the Club-room, British Workman, on

Monday last, the President, Mr. C. B. STEVENS, presiding over a good attendance of members. The subject for the evening was "A Chat about Melons," introduced by Mr. B. Dockerill, The Gardens, Elmhurst, Reading, a well-known grower and successful exhibitor of this fruit. The paper was of the most practical nature, and dealt with the cultivation of the Melon in all its branches. Mr. Dockerill said he was obliged to condense a large subject into a small paper, but trusted that it would be sufficient to open up a good discussion on the principal points worth considering. Some excellent blooms, equal in quality to those seen in November, of Mrs. E. W. Clarke and J. H. Taylor Chrysanthemums were on view.



[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.					No. of Rainy Days since January 2, 1898.	Total Fall since Jan. 2, 1898.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 2, 1898.
	Above (+) or below (−) the Mean for the week ending February 19.	Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since January 2, 1898.	Below 42°, difference from Mean since January 2, 1898.				
0	1 + 3	31	+ 52	160	10 +	45	12.2	12	13
1	2 + 7	31	+ 66	170	1 +	23	2.6	28	22
2	3 + 13	26	+ 110	174	3 +	21	1.5	24	20
3	3 + 14	25	+ 58	179	3 +	20	1.6	25	18
4	3 + 13	22	+ 69	196	1 +	21	1.6	21	16
5	4 + 25	8	+ 92	2 + 9	2 +	18	1.5	23	20
6	2 + 10	21	+ 90	167	2 +	37	7.0	22	18
7	2 + 17	10	+ 99	191	1 +	33	5.5	20	17
8	4 + 28	5	+ 100	153	3 +	23	3.4	24	19
9	2 + 22	13	+ 94	143	2 +	34	5.0	13	13
10	3 + 30	5	+ 119	130	4 +	20	4.4	16	13
11	4 + 43	0	+ 122	81	4 +	29	1.3	29	30

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending February 19, is furnished from the Meteorological Office:—

"The weather continued mild and fair over the greater part of the kingdom during the first half of the period, and was again mild and rainy in the extreme north and north-west. After Wednesday, however, it became much colder, and showers of cold rain or sleet were experienced in all parts of the kingdom.

"The temperature was again above the mean, as a whole, the excess ranging from 4° in 'England, S. and S.W.' and the 'Channel Islands,' to 1° in 'Scotland, N.' The highest of the maxima were registered at most stations on the 15th, and ranged from 59° in 'Scotland, E.,' and 57° in 'England, N.E.' and 'Ireland, S.' to 52° in 'Scotland, N.' The lowest of the minima were recorded on Saturday, when the thermometer fell to 29° in 'England, S.W.,' 24° in 'Ireland, S.,' 23° in the 'Midland Counties' and 'Scotland, W.,' 29° in 'Ireland, N.,' and to 37° in the 'Channel Islands.'

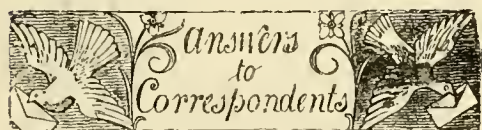
"The rain/fall was again much above the mean in 'Scotland, N.,' and was slightly in excess in 'England, N.W.' and 'Ireland, N.' Elsewhere the fall, though greater than that of last week, was again less than the normal.

"The bright sunshine was deficient over the kingdom generally, but somewhat exceeded the mean in 'Scotland, N.,' and W., and 'England, N.E.' The percentage of possible duration ranged from 29 in the 'Channel Islands,' and 28 in 'Scotland, E.,' to 16 in 'Ireland, S.,' 13 in 'Ireland, N.,' and 12 in 'Scotland, N.'

VARIORUM.

NEW PALM-HOUSE FOR LIVERPOOL.—Mr. Henry Yates Thompson, of Bryanston Square, London, and Thingwall Hall, near Liverpool, on Wednesday, 23rd inst., arranged to provide for Stanley Park, Liverpool, a Palm-house somewhat similar to one he placed in Sefton Park in the same city in 1896, of which we gave a figure on July 18, 1896. The Sefton Park Palm-house and its plants cost over £12,000. That for Stanley Park will be about 120 feet long, and will cost about £6000. Mr. Thompson waited upon the Parks and Gardens Committee of the Corporation on the 23rd inst., with Mr. Mackenzie, of the firm of Mackenzie & Moncur, horticultural builders, Edinburgh, who submitted the plans of the structure which the firm will build. Mr. Thompson was warmly thanked by the Lord Mayor and Alderman Ball, chairman of the committee.

POTATO TESTS IN CHESHIRE.—The Cheshire County Council have issued a report of a series of experiments in Potato-growing, which they carried out at the Agricultural and Horticultural School, Holmes Chapel, last year. The manure applied to the Potato crop in these tests was a particularly well-balanced one, and was as follows:—Farmyard manure, 15 tons; super-phosphate (35 per cent. soluble), 4 cwt.; kainit (12 per cent. of potash), 1 cwt.; sulphate of ammonia (98 per cent. purity) $\frac{3}{4}$ cwt. Of the early varieties, the Early Market Favourite came out best with a total yield of 10 tons 13½ cwt. per acre. Of the second earlies, Findlay's Challenge came out best with a total yield of 14 tons 7 cwt. per acre, Beauty of Bute, Findlay's Conquest, and Findlay's British Queen all being only a few cwt. behind the winner. Of the late varieties, Findlay's Up-to-Date was a clear first with a total yield of 17 tons 13½ cwt. per acre, Maddock's Hough Giant being second with a total yield of 16 tons 7 cwt. per acre. The Cheshire experimenters also devoted some experiments towards solving the question as to whether it was better to plant whole sets than cut sets, but they are evidently not quite certain as to the results; and they give it as their opinion that, before a definite conclusion can be drawn, these experiments will have to be carried on for a number of years, and with a good many varieties of Potatoes. "*North-British Agriculturist*," Feb. 12, 1898.



AMERICAN PEARL TUBEROSE: *Novice, Chadwell Heath.* Pot one tuber in one pot, a 48, and if possible of that deep kind called a Hyacinth-pot. Use loam enriched with decayed manure or leaf-mould, and if it be retentive loam, put a small quantity of sand with it. Sink the bulb $\frac{1}{2}$ of its depth in the soil, and if the latter is moist afford no water, and place in bottom heat of 70° to 75°, and do not afford water till growth ensues. If the sun shines brightly, shade them, and syringe lightly once or twice a day according to the state of the weather. If the bulbs are plunged in a hot bed of leaves, or leaves and stable dung, sufficient moisture will be retained in or imparted to the soil to start them without affording water. They do not require starting in the dark, like Hyacinths.

COCKROACHES: *G. M. K.* The Ballinkinrain Antidote is sold by Messrs. Cross & Sons, Hope Street, Glasgow; this firm should advertise this capital destroyer more generally.

CYMBIDIUM ALOEFOLIUM: *Veritas.* The flowering season is spring and early summer.

GARDENIA BLOOMS DROPPING: *A. E. F.* Some fault of management is the cause of the dropping of the blooms; but as you afford no particulars of your methods, we will indicate those that are found to be successful with all of the species. To pot the plants in loam and peat in equal proportions, adding a small quantity of decayed manure, and

enough sharp sand as will give a certain degree of porosity to the soil. Potting should be done firmly, the plants not afforded very large shifts, and the last shift should be given whilst there is sufficient time for growth to be made and matured and the roots to fill the pot before the growing season comes to an end. Whilst making growth, bottom-heat of 75° to 80° is a help, but it is not essential. Stopping of the shoots may take place twice during growth, and manure-water occasionally is helpful, varying it with applications of clear soot-water. When growth is finished, remove from the stove-pit to one 5° to 7° cooler, and let the plants remain therein till they are wanted to bloom, when a change back again to stove warmth will cause the buds to expand, provided these were set during the latter part of the growing season. Enough water should be afforded whilst the plants are resting in the cooler house to keep them healthy and prevent the flower-buds from dropping, but not so much as would prevent resting; and equally so in the hotter house where the blooms are to expand, as it is not at that time but after flowering is over that growth should be encouraged. Repotting and pruning should be performed after flowering. The plants should be kept clean by syringing them with soap-suds and petroleum, a wine-glass of the latter to one gallon of suds and kept stirred; and every day, once or twice, as the needs of the plant may indicate, the syringe and clean rain-water should be in request during the period of growth. Scarcely any shading from the sun's rays is required. Sometimes eel-worms attack the roots, bringing the plants into bad health. Can you send some pieces for examination.

MINERAL MANURE: *Constant Reader.* Nitrate of soda.

NAMES OF FRUITS: *W. B.* Golden Reineette, much bruised.—*A. L. S.* Too late to determine with certainty. 1, probably Small's Admirable; 2, Annie Elizabeth; 3, Bramley's Seedling; 5, French Crab.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*J. Souza.* *Calanthe indicus.*—*M. H. T.* 1, a species of Juniper, we cannot tell which in its immature condition; 2, *Coccoloba platycladon*; 3, *Lycopodium Hookeri*; 4, *Mesembryanthemum barbatum*.—*S. D.* The plant is commonly known in gardens as *Begonia glaucophylla*. It is also sometimes called *B. fagifolia*. It is an excellent plant for large suspended baskets, and for covering back walls in warm plant-houses.—*A. L. B.* *Iris tuberosa*, figured in *Gardeners' Chronicle*, May 23, 1885, p. 672.—*W. C.* 1, *Berberis Bealei*; 2, *Berberis aquifolium*; 3, *Berberis Darwinii*, *Pinus insignis*.—*F. M. M.* 1, *Oncidium sarcodes*; 2, *Leptotes (Tetramicra) bicolor*; 3, *Laelia cinnabarina*.—*T. H. D., Chorley.* 1, *Cypripedium Savaganum*, pale variety; 2, *Cypripedium polystigmaticum*; 3, *Cypripedium Harrisianum roseum*; 4, one of the forms of *C. Harrisianum*; 5, *Cypripedium oenanthum*; 6, *Cypripedium grande*; 7, *C. Harrisianum* variety; 8, *C. Harrisianum* variety; 9, *Phaius Wallichii*; 10, *Cypripedium chlorocephalum*, one of the very earliest hybrids; 11, not developed. Probably *C. oenanthum superbum*.—*H. C., Sevenoaks.* The *Amaryllis* you send has occasionally appeared in gardens. It is known as *Hippeastrum (Amaryllis) Alberti*. It is doubtless a double form of *H. equestris*.—*H. Jenkins, Cornus mas.*—*L. C. Masdevallia melanopus.*

PEACH-BUDS DEAD: *A. Y.* We should advise you to look to the roots, that being doubtless the seat of the trouble. It is a common occurrence for Peaches growing in dry borders to cast their flower and wood-buds, but this is something quite different.

PRIMULA SINENSIS, DOUBLE-FLOWED: *C. B. W.* When bloom is over, put the plants close together on a spent or nearly spent hot-bed, filling in between and close around the stems with chopped sphagnum-moss, peat, and sand, and keep moderately moist and closely shaded from strong sunshine till the offshoots push roots into these materials, when the former should be detached and potted into a somewhat similar mixture, but with a little more peat. Thumb-pots will be large enough for most of them at the first, keep close for a week or longer in a frame, after that lapse of time, gradually accustoming the plants to more air. They will do in a cold frame facing west or north

during the summer. The plants will come into small 48's by repeated shifts by the end of the growing season.

SOLANUM CAPSICASTRUM: *Novice, Chadwell Heath.* The plants having been kept dry may be cut back considerably, say, to one-half the length of the shoots, and afforded water to thoroughly wet the soil, and be stood near the glass and away from the heating apparatus in a warm greenhouse of 50° to 55° of warmth. When the new growths burst forth, turn them out, knock much of the soil away, cut back the roots a little, and repot in smaller pots, using rich sandy loam, and potting firmly. Be not over liberal with water at the root till these permeate the soil, but moisten the tops once a day in fine weather, and do not let red-spider infest them. They will do very well under greenhouse treatment when April is out. Let the shoots be stopped once or twice, if you like very bushy, compact plants, otherwise stopping will not be needed; and we think plants with long, graceful racemes of berries are the prettier objects. Cuttings may be made from the young shoots; they strike readily in a hotbed. You may rub the seeds out of the fruits in hot water, and after drying them they may be sown in pots of sandy soil put in a moderately warm pit or frame to germinate, taking them out as soon as a true leaf is made. These and cuttings may be treated similarly to the old plants, potting them on by degrees till they arrive in 7-inch pots. Seeds may be sown in March, and cuttings rooted again in about two months' time, if a succession of plants be needed.

SOYA BEAN: *W. S.* This particular Bean would only succeed in this country in unusually warm seasons, and few seedsmen catalogue it, though they would doubtless procure it for you. In any case, seeds may be obtained from MM. Vilmorin & Co., 24, Mark Lane, London, E.C.

TOMATOS: *J. D.* You would do well to buy a Manual on Tomato Cultivation. A very useful one is Mr. Ravenscroft's, published by Mr. Upcott Gill, 171, Strand, W.C., at the price, we believe, of 1s.

TOMATO HAM GREEN FAVOURITE: *W. J. S.* In extra warm summers it crops abundantly out-of-doors in the open quarter, and against a south wall it is generally a success.

VINE LEAVES: *J. Shaw.* The Vine leaves are attacked by a fungus called *Sclerotinia Fuckeliana*. The summer form of the fungus—once called *Botrytis cinerea*—occurs on the leaves under the form of a brown mould, and in some instances, where neglected, also attacks the flowers and fruit. Spray the Vines once a fortnight with a solution of potassium sulphide, half an ounce to a gallon of water. The spraying should be repeated next year, commencing as the leaf-buds expand, and repeat at intervals during the season. This treatment is absolutely necessary, as myriads of fungus-spores are certain to remain over the winter, and inoculate the leaves next season if not prevented by spraying. All leaves attacked by the fungus should be collected and burned, and the viney should be kept perfectly clean, as the fungus grows readily on dead fallen leaves, &c. *G. Massee.*

COMMUNICATIONS RECEIVED.—S. K.—S. A.—H. M. E.—W. E. B.—F. N.—W. J. B.—F. C. L.—T. B.—F. H.—J. O'B.—R. L. H.—H. M. E.—E. O. A.—H. M.—A. Hope.—H. H.

CONTINUED LARGE INCREASE in the CIRCULATION of the "GARDENERS' CHRONICLE."

Important to Advertisers.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED,
and that it continues to increase weekly.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.

(For Markets see p. xiii.)



THE

Gardeners' Chronicle.

SATURDAY, MARCH 5, 1898.

EARLY HERBALS.

TO the lay mind a "herbal" will suggest nothing more than the irrepressible Culpepper, whose work, it is true, has practically held the market for nearly two and a half centuries. Mr. Culpepper may justly claim—were he still in the land of the living—a greater popularity and a larger vogue than all the other kindred writers put together; but there were "herbals" nevertheless long before he wrote. An extraordinary collection of very early examples, dating chiefly before the year 1500, is to come under the hammer at Sotheby's sale-room in Wellington Street, London, on March 23, and a few particulars concerning the more interesting may not be out of place in these columns.

The most important lot of all is, perhaps, a French MS. of the fifteenth century, entitled *Le Livre des Simples Médicines, suivi d'un Recueil de Recettes*, &c.; this MS. extends to 314 leaves, partly vellum, and partly paper, and is ornamented with many hundred coloured drawings of plants, fishes, insects, &c. Manuscripts of this character are very uncommon. The next great rarity is a copy of the work, entitled *Arbolayre Contetut la Qualitey et virtus Proprietes des Herbes*, &c., printed at Lyons by M. Husz about the year 1485. This book, of which the only other copy known is in the Bibliothèque Nationale at Paris, is described by Brunet as a "volume précieux," and it has numerous fine woodcuts, including the full-page one of the botanists in council; it is a translation of the German *Herbal* printed at Bale.

There are copies of three editions of the *Buch der Natur*. The earliest was printed at Augsburg, by J. Bamler, in 1475, and is distinguished by its numerous fine full-page woodcuts in the style of the block-books, coloured by a contemporary artist. This edition was a favourite one with the late William Morris, who, in his article on the woodcut books of Ulm and Augsburg, thus speaks of it:—"With many full-page cuts of much interest. It has full-page cuts of animals, herbs, and human figures exceedingly quaint, but for the most part very well designed; a half-figure of a bishop 'in pontificalibus' is particularly bold and happy." The second edition of this book, which is almost as rare as the first, appeared in 1478, and it differs from the *editio princeps*, chiefly in being "set" in another type, and in the ornamental initials not being in outline. The third copy is from the Augsburg press of Hans Schonsberger, 1499, whilst the cuts are copies of those in the first edition, with the addition of two others from the Strassburg *Hortus Sanitatis*, circa 1490. There are three editions of the *Ruralium Commodorum* of P. de Crescentus, a celebrated treatise on agriculture, the earliest being from the press of Schüssler, Augsburg, 1471, the

other two being printed in 1486 and 1490 respectively.

Of that exceedingly popular book, Glanville *De Proprietatibus Rerum*, there is a fine and large copy printed in the type used by Richel & Wensler at Bale, and it was probably printed about 1470. Not so early, but from a typographical point of view even more interesting, is the fine copy of the *Herbarius sive Aggregator*, from the press of Peter Schoeffer, the earliest with a date, 1484; it has 150 numbered woodcuts of herbs in contemporary colouring, the names in Latin and German, and the text in Latin. Following this example from the press of Schoeffer, comes a large copy of the *Herbarius Patanjie*, 1485, which is a close copy of the last-mentioned work; it also has 150 cuts of herbs in contemporary colouring, and was probably printed at Passau by Conrad Stahel. Of the three editions of *Herbolarium de virtutibus herbarum*, all printed at Venice, the most important is that dated 1491, and printed by L. de Basilea and G. de Papia; it is very rare, and has numerous coloured woodcuts. Although it bears the names of Arnoldus de Novavilla and Avicenna on the title, they are not the authors of the work, and are merely referred to in the preface.

The editions of the *Hortus Sanitatis* start with the extremely rare first edition in German of this celebrated herbal, which forms the basis of Meidenbach's enlarged Latin edition; it was printed by Schoeffer at Mainz in 1485; it contains over 300 woodcuts of plants and animals, including a fine frontispiece of botanists in council, in contemporary colouring. The Strasburg editions of Pryss, about 1487, and Beck, of about 1490, are each represented by a copy, the latter being an especially fine one, and is noteworthy for its numerous spirited woodcuts of farming and gardening operations, flowers, &c. The Mainz edition from the press of J. Meydenbach, 1491, "per J. de Cuba," is almost uncut, and contains numerous large and small woodcuts, uncoloured. The series ends with a copy of Gaza's first edition of Theophrastus, *De Plantarum historia libri et de causis plantarum, libri vi.*, 1483.

Following this very interesting collection of early herbals comes a valuable and extensive collection of books relating to gardening, flowers, &c., in 150 lots. The books are principally treatises published in the sixteenth, seventeenth, and eighteenth centuries, chiefly in French, English, and Latin. Some are very rare, and nearly all are choice copies, whilst the collection is one which could only have been formed after many years of diligent seeking. To those interested in the literature of gardening, the collection is one of very unusual interest. *W. Roberts.*

THE FLORA OF THE AZORES.

THE connection between the Missouri Botanical Garden and the Azorean or Hawk Islands, seems rather remote, yet the greater part of the eighth annual report of this garden is devoted to the description and illustration of the Flora of the Azores. Dr. Trelease, the Director of the garden in question, has spent two vacations in the islands; hence the connection. But before commenting on his *Botanical Observations*, a few words on the position and the history of botanical discovery in the islands.

Although generally included in the map of Africa, and by botanical geographers considered as forming an outlying fragment of the

Canary and Madeiran flora, the Azores belong to Europe, being situated about 700 miles from the coast of Portugal, and almost centrally traversed by the 38th parallel of latitude. There are nine islands, in three groups, having an aggregate area of about 700 square miles. They are of volcanic origin, and St. Michael's, which will be associated with Oranges by our older readers, and with Pine-apples by our newer clients, is the largest, and its highest peaks are from 3000 to 3500 feet high. The heights are chiefly covered with *Erica azorica*, *Juniperus brevifolia*, and *Myrica Faya*. Pico is next in size to St. Michael's, and was named from its extinct volcano, which rises to a height of 7600 feet, the summit being bare of vegetation.

As explained further on, a very large proportion of the plants are common to Europe, and the only reason for uniting the Azores botanically with the Canaries is, that the two groups possess two Laurels (*Persea canariensis** and *P. indica*) in common.

Francis Masson, the first of many collectors sent out under the advice and direction of Sir Joseph Banks, to collect seeds and plants for the Royal Gardens at Kew, landed on one or more of the islands on his first voyage to the Cape of Good Hope, and sent home a few things. This was in 1772, shortly after the accomplishment of Cook's first voyage, in which Banks took part, and which, mainly through his exertions and far-seeing sagacity, resulted in such splendid developments in horticulture and colonisation. Masson's stay in the island was a very brief one, and he did not, we believe, procure any of the specially interesting endemic plants, but he was apparently the first of a long line of botanists who have successfully visited the islands. It is true that the French botanist, Adanson, spent time there on his return in 1757, from Senegal, but all his plants were destroyed on a stormy passage, of two months' duration, thence to Brest. Among the few plants introduced by Masson were *Hypericum foliosum*, *Erythraea Massoni*, *Cynoglossum pictum*, and *Myrica Faya*, described by Aiton in the *Hortus Kewensis*.

In 1838, the Hochstetters, father and son, visited the islands, and made considerable collections, which were elaborated in Seubert's *Flora Azorica*, illustrated by fourteen quarto plates, chiefly of endemic plants. This was followed, in 1866, by H. Drouet's *Catalogue de la Flore des Iles Azores*, preceded by a narrative of a voyage in that archipelago; and in 1870, by F. Du Cane Godman's *Natural History of the Azores, or Western Islands*. The botany of the last was written by H. C. Watson, the author of the *Cybele Britannica*, who had himself botanised some of the islands. All three of the publications named are good, but the last is more nearly complete and more critical than its predecessors, and of course more useful to the English reader. It contains an account of the position and physical characteristics of the islands, and much other interesting matter; but is not illustrated. This in its turn has been followed, though not superseded, by the American work referred to above. Indeed, each of these works supplements the others, but neither contains descriptions of all the species. Each contains descriptions of the assumed new species, and as Seubert's *Flora* was first, it contains the largest number of descriptions. Out of 400 species, including cellular cryptogams, he estimated fifty to be endemic; 316, European;

* Dr. Trelease treats the Azorean form as a distinct species.

twenty-three, Canarian or Madeiran; five, African (and not European); and six, American. Since then, many rectifications and some additions have been made. Watson's enumeration of the flowering plants and Ferns brings the number up to 478, whereof forty are regarded as endemic. Watson gives a geographical tabulation of all the species, showing the extension to Europe, Madeira, Canaries, and America, and those which only occur in Africa and the Azores. I have mentioned that Seubert gives five species as African—that is, extending to Africa only; and the most striking fact in Watson's table is the small number (10) that extend to Africa, but not to Europe. *Cakile americana* and *Solidago sempervirens*, two seaside plants, are otherwise restricted to America, though the former is so near our native *C. maritima* as to be included in it by many botanists. Watson also gives a list of Azorean plants common to Madeira or the Canaries, but not found in Europe. Excluding a few that are evidently colonists in both groups of islands, they number about thirty; among them, *Ilex perado*, *Hedera canariensis*, *Notelaea excelsa*, *Laurus canariensis*, *Persea indica*, and *Myrica Faya*.

Dr. Trelease's account of the *Botany of the Azores*, which has been most liberally distributed, has also been issued separately, forming an octavo volume of 145 pages, with fifty-five plates. Unfortunately, the author has not summarised his work, so that it is difficult to form a correct idea of the extent to which it supplements that of his predecessors. Nor has he given the external distribution of the plants enumerated. In these respects, therefore, it is less interesting than Watson's account. As a synonymic enumeration only is it superior; but it is a pity the author did not go a little further, even though he gave some of it at second-hand, because the older works are all comparatively rare.

However, we can only discuss what he has given us. British botanists will find the list easy to use, as the author has followed the *Genera Plantarum* and *Index Kewensis* as closely as possible. Typographical variations, asterisks, and other signs are employed to indicate the endemic and other elements. Dr. Trelease seems to have discovered no endemic plant previously altogether unknown; but he has been able to describe more fully several that were previously imperfectly known. The following is a list of the endemic plants:—*Cardamine caldeirarum*, *Cerastium azoricum*, *Hypericum foliosum*, *Vicia Denesiaana*, *Rubus Hochstetterorum*, *Sanicula azorica*, *Ammi Seubertianum*, *A. trifoliatum*, *Cherophyllum azoricum*, *Scabiosa nitens*, *Bellis azorica*, *Tolpis nobilis*, *Picris rigens*, *P. filii*, *Lactuca Watsoniana*, *Campanula Vidalii*, *Vaccinium cylindraceum*, *Erica azorica*, *Lysimachia azorica*, *Myosotis azorica*, *M. maritima*, *Veronica Dabneyi*, *Euphrasia grandiflora*, *Persea azorica*, *Euphorbia Stygiaca*, *E. azorica*, *Habenaria micrantha*, *H. longibracteata*, *Luzula purpureo-splendens*, *Carex azorica*, *C. Vulcani*, *C. Hochstetteriana*, *Holcus rigidus*, *Deschampsia foliosa*, *Festuca petraea*, *Juniperus brevifolia*, *Isoetes azorica*, and *Selaginella azorica*.

A comparison of the foregoing list, with those of Seubert and Watson, reveals a reduction of the number of supposed endemic species as the result of further investigation. It differs very slightly from Watson's, the principal deviations being *Cherophyllum azoricum* and *Lactuca Watsoniana*, two of Watson's doubtful plants, described by Trelease as new species. The author does not mention that his identifications of these plants were verified for him at Kew by comparison with Watson's specimens.

The most surprising fact in the flora of the Azores is the smallness of the endemic element, which does not contain a single genus, and consists almost entirely of species belonging to genera common not only to Europe, but also to the British islands. *Campanula Vidalii*, a shrubby species having rosettes of

leaves at the ends of the branches, is the only plant of an anomalous character. Dr. Trelease's fifty-five plates are devoted in part to the illustration of the endemic plants, and also, to some extent, of introduced plants, now very widely dispersed in warm and hot countries. One wonders why it should have been thought desirable to figure such plants as *Solanum pseudo-capsicum* and *Physalis peruviana*, especially as there is no reference to their illustrating any particular point or phenomenon. The half-a-dozen plates illustrating forms of *Agrostis Castellana* are of a more critical character. W. Botting Hemsley.

NEW OR NOTEWORTHY PLANTS.

CATTLEYA TRIANÆI, CHARDWAR VARIETY.

NOT among the hundreds of varieties of *Cattleya labiata* Trianæi have I observed any which, while exhibiting fine flowers, have offered so certain a means of identification as this one. The flower is 7 inches across, and the petals, slightly wavy at the edges, are 3 inches in width, and the sepals and petals are of a delicate lavender hue. The chief distinguishing feature lies in the colouring of the lip, the base of which, beneath the column, is of a rich purple hue, traversed by a clear network of white leaves, the purple colour shading off into a kind of glow as it nears the edges of the side lobes, giving the interior a pretty appearance. The disc is of chrome-yellow, the white lines of the base extending through it until it reaches the white band which divides the middle area from the bright purple colour of the front of the lip. This handsome variety was flowered by G. F. Moore, Esq., Chardwar, Bourton-on-the-Water.

CATTLEYA TRIANÆI, BROOME'S VARIETY.

This is a very beautiful variety, and entitled to rank with the best forms of *Cattleya labiata*. Its flowers are above ordinary size, the lip and petals broad and evenly arranged, so that, with the background of the sepals, the greater part of the circumference of the flower consists of showy segments that have great substance. It may be classed with the famous C. T. Lecana, excepting that the petals are nearly horizontal, and do not droop so much at the tips, and the lip is a much brighter colour, and petals and labellum are beautifully crimped at the edges. The sepals and petals are of a soft rosy-lilac hue, with silver-white mid-rib in the lower halves. The lip is on the outside rose-coloured, with veining of purple. Internally it is orange at the base, with some dark red lines, and the sides white, tinged with rose on the upper edges. The middle area has a divided yellow band, in front of which the colour is of a claret-crimson hue that merges into violet-purple, and changes to a lighter tint on approaching the crimped margin. The plant has flowered in the garden of Joseph Broome, Esq., Sunny Hill, Llandudno. Its owner considers it to be one of the best that he has flowered. James O'Brien.

CYCLAMENS.

It is extremely desirable in the interests of science (which means ultimately those of practice), that notes should be taken of the variations and "breaks" that occur in our cultivated plants. For this reason we add to the illustrations of variations of Cyclamen which we have already given an additional series of illustrations, taken from plants exhibited at the Royal Horticultural Society by Messrs. Sutton on January 11 last. Fig. 51 shows the nearest approximation to *C. latifolium* (persicum of gardens); and Fig. 52 shows a slight advance after cultivation; Figs. 53 to 55 show various forms of doubling, the doubling in this case being the result of the formation of an increased number of petals. The doubling of these flowers was the subject some years since of a paper in the *Transactions of the Linnean Society* by Dr. Masters, wherein the morphology of these flowers was discussed,

MARKET GARDENING.

(Continued from p. 118.)

CABBAGES.

SUCH varieties as Heartwell, Ellam's Early, and Enfield Market, planted in September at the same distance as recommended for Cauliflowers, would command a wholesale price of 1s. 6d. per dozen the following May—£63 0s. 6d., or putting the price at 1s. per dozen, would give a sum of £45 7s. per acre. As soon as the first crop of Cabbage is cleared, the ground should be planted with Lettuce, and *vice versa*, making for the two crops in the year at the higher rate £128 10s. 6d. per acre, and at the lower prices £90 14s. 6d. And should Beet-seed be sown pretty thickly in April, so as to admit of plants being available from the thinnings to transplant in an acre or more in rows at 1 foot apart, and 9 inches the row, after the crop of Lettuce (following the autumn-raised Cabbages) has been marketed, 1,593 dozen roots per acre will be secured, and which at 9d. per dozen will be £59 14s. 9d., thus giving a sum total of £188 5s. 3d. per acre for the three crops indicated in one year.

Raising and forwarding young plants is a matter of great importance in connection with successful market and private gardening, inasmuch as earlier crops and consequently higher prices are obtained for the produce. In preference to the old-fashioned elevated and consequently exposed hotbeds, I shall recommend excavated pits—say 3 feet deep—if this can be safely done, 4½ feet wide, and long enough to admit of one or a series of four-light frames being placed over the hotbeds, leaving a clear space of solid ground of 3 inches at sides and ends of frame or frames to rest on. Fill the pit thus made with leaves or long-dung to within 3 inches of glass, trampling the litter, &c., to make it firm before covering it with soil. This bed of soil should have a depth of 3 inches and be raked level, and on this sow the seeds of Cabbage, Cauliflower, Lettuce (Paris Green and Paris White Cos), and All-the-Year-Round and Favourite Cabbage varieties, and Brussels Sprouts, covering the seed lightly. Sufficient air should be given to insure sturdy growth as soon as the young plants appear. As soon as large enough to handle, prick them out a few inches apart in a sunny aspect under glass preparatory to transplanting in the open later on. H. W. W.

CULTURE OF GARDENIAS.

The dropping of the flower-buds of *Gardenia*—or, at a later stage, of the expanded blooms—to which my attention was directed by an answer to an enquiry in the issue of the *Gardeners' Chronicle* for Feb. 26, may in the absence of an obvious cause be attributed to inactivity of the roots, arising from the plant having had over-much water at the root, or water at a low temperature, and probably to excessive over-head syringing combined with a low temperature. Other causes of failure may be the excessive use of chemical manures, which are rarely needed when the cultivation is of the right kind. As the premature fall of the flower-buds is by no means uncommon, a few remarks to supplement what is stated at p. 132, may not be out of place. It is usually thought that *Gardenia radicans*, *G. Fortunei*, *G. florida intermedia*, are capable of enduring any amount of heat with impunity, but this is an error common among gardeners who have no great deal of practical knowledge of the subject. Indeed, at the present time, I know an instance of a lot of *Gardenia* occupying a very warm part of a stove in close proximity to the hot-water pipes having become flowerless from this cause. The cause being known, means have been taken to remedy the evil by enclosing the hot water pipes at that part in a chamber.

There are failures the cause of which are not thus clearly indicated, and then it is that sometimes the efforts at bettering are made in a wrong direction, with the result of intensifying the trouble. Bel-worms, as stated in the editorial note, cause a most disastrous loss of plants. I have known houses of more than 100 feet long, 25 feet wide, become a prey to this foe, and after struggling with it for two or three years the cultivator has had to clear out and



FIG. 51.—CYCLAMEN LATI-
FOLIUM: [WILD TYPE.
(SEE P. 134.)



FIG. 53.—SEMI-DOUBLE FLOWERS OF CYCLAMEN.
(SEE P. 134.)



FIG. 52.—CYCLAMEN LATIFOLIUM (PERSICUM):
SHOWING A SLIGHT ADVANCE.
(SEE P. 134.)

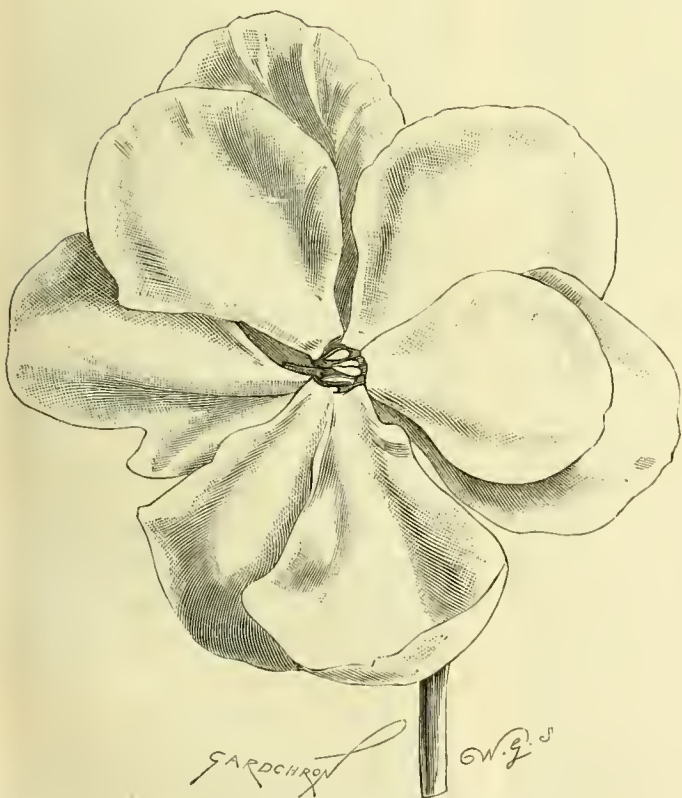


FIG. 54.—SEMI-DOUBLE FLOWERS OF CYCLAMEN.
(SEE P. 134.)



FIG. 55.—SEMI-DOUBLE FLOWER OF CYCLAMEN WITH
FRINGED PETALS. (SEE P. 134.)

burn the lot. Not only is this a loss of plants, but it is also a loss that is felt probably during the whole period of occupancy.

Gardenias are much better bloomers when planted out in houses, large or small, devoted to them, growing only sufficient in pots to supply midwinter or very early blooms. Such plants may be grown in pots for two years or thereabouts, but if longer retained they are as a rule addicted to sickness that the best cultural methods will barely rectify. An important point in their culture in pots is rarely supplied long together, and unless periodical shifts are indulged in the plants are not sustained in a degree commensurate with their requirements. The item referred to is due to the fact that the plants are surface-rooters, a fact of importance, yet one that is often overlooked by gardeners. The Gardenia is, indeed, one of the few hard-wooded shrubs that produce surface-roots in such quantities as to render top-dressing an essential matter; and if this be afforded at the right season, and with discretion, the crop of flowers is sure to be abundant and good. Some gardeners prefer peat as the rooting medium, and I have seen instances where Gardenias have been planted out and surrounded by turves of the finest peat; but I have never observed in such plants the vigour remarked in plants grown in sandy loam, with slight additions of manure, such as leaf-soil, soot, or the like. In my neighbourhood there are perhaps several acres of Gardenias under glass, nearly the whole of which are planted out, in the ordinary staple, with or without manure as the case may require, and with perhaps the addition of some spent potting-bench soil, just to afford the plants a start. The vigour of such plants would surprise not a few gardeners, who only know Gardenias as pot plants. As a rule, the grower for market prefers pot plants of one or two years' growth for planting out, and the reason is that they are well provided with roots, and have a sort of ascendant framework of branches established as it were; but when, on the contrary, they are planted in a quite young state, and with plenty of space, the plants incline to trail about on the soil, to the detriment of the plant as well as the bloom, while the branches are also in the way when the beds are top-dressed. Plants that are grown rather closely together, as pot-plants usually are, become erect in habit, and these find most favour for planting out, for the after-growth alone will produce a spread of branches that completely cover the pathways in the houses. The fear generally with these when freshly planted out in new soil is that growth will become too rampant, and thereby impair the crop to follow. This is guarded against when top-dressing, and only the smallest amount of soil is afforded that will cover the roots. Originally planted in saucer-shaped holes sufficient to bury one-third of the ball of earth and roots, and the soil mounded up to them, the latter is added to from time to time, so that the mounds become a level bed. This may take two years to accomplish, by which time the plants are, perhaps, 4 feet high and broad. Plants four years planted become bushes of 6 feet or more in height, with branches so interwoven as to completely cover the beds, sometimes 6 feet to 8 feet wide, and form an almost impenetrable mass of dark green foliage. Established or old plants are given a small quantity of manure, artificial or other, occasionally, and usually some soot is added to the soil. Such plants are less liable to be infested by insect pests than those grown in pots. Few gardeners have the facilities for planting Gardenias in a house by themselves; but those having a front stage may plant them there in about 6 inches of soil. A few boards will make the bottom and sides complete, and the floriferousness of the plants will thereby be much increased.

Pot-grown plants need periodical surface-dressings. A half-inch layer of soil will be enough at a time, and as the roots will soon seize upon it, this will afford the best proof of its benefit. As a general rule, by artificial heat 65° to 75° is ample during growth, greater or less according to circumstances. In times of severe frost, a much lower temperature is often recorded with impunity. In these market establishments,

pruning is performed annually after flowering, and no stopping is indulged in unless it be that of a gross or forward shoot here and there. Bottom-heat is almost unknown, and the great bulk of plants luxuriating on the cool shallow beds of soil could scarcely be improved. J.

FOREIGN CORRESPONDENCE.

CANTUA DEPENDENS.

ONE of the most striking of the shrubs new in blossom in the garden at La Mortola is the Peruvian *Cantua buxifolia* or *dependens*. Its long tubular blossoms always begin flowering at the end of the branches, and not as represented by the drawing of Fitch in No. 4584 of the *Botanical Magazine*, which shows the flowers nearer the base of the branch more developed than those at the extremity. In the summer it gets rid of its leaves as a precaution against the heat and drought, though even so, it cannot go very long without being watered. In the autumn, however, after a little rain, it at once begins to throw out small pinnatifid leaves. As a rule, the stamens are bent on one side, rendering the radiate flower somewhat zygomorphic; but if, as occasionally happens, a bud is exactly perpendicular, the flower is then actually radiate. According to Delpino, the Italian plant-biologist, *Cantua buxifolia* is fertilised in its native country by humming-birds, as is often the case with tropical or sub-tropical flowers of this size. At La Mortola there are large numbers of bees, which serve to fertilise these plants; and it appears as though there were also a provision for self-fecundation. *Cantua dependens* may easily be propagated, both by cuttings and seeds, but it is a slow-growing shrub. A. Berger, Curator, La Mortola, February 26, 1898.

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Barford, Dorking.

Cattleya or *Intermediate-house*.—Plants of *C. amethystoglossa*, *C. chocoensis*, and *C. Walkeriana*, should be afforded a little more water at the root for a time, but when the blooms have fully expanded it may be withheld until the plants again commence to grow. *C. Walkeriana* (*C. delosa*) produces its flower-spikes from the apex of deformed like growths that spring from the bulbs last made, and as soon as these growths are seen suspend the plants where they will receive the maximum amount of light. The distinct-growing *C. Schilleriana* should now be placed in a similar position, and if any of the plants require fresh compost, or more rooting-space, it should be afforded them at once. A very thin layer of peat will suffice as a rooting medium. Keep the plants well supplied with water during growth. *C. labiata* Warneri should be afforded every encouragement until growth is completed, and the flowers appear. The best time to report *C. Warneri* is when roots are to be seen issuing from the base of the new pseudo-bulbs. *C. Percivaliana* having finished blooming may be kept rather dry at the root till growth recommences. *Dendrobium chrysanthum*, which comes from the hills of Nepal, succeeds at the lightest end of this house. Although the plant may be growing vigorously, the grower must not be tempted to apply water very copiously, the effects of which would be that fewer roots would be made, and less growth. To obtain sound healthy growths and abundant flowers, keep the plant rather on the dry side until the roots are abundant, then the amount of water may be gradually increased. Plants of *Oncidium amphiatum* that have been at rest in this house, should be removed to a slightly warmer one and enough water afforded as will keep the roots moist. Wrap a piece of wool around the spikes to protect them from woodlice, cockroaches, and other insects. Vandas of the tricolor and suavis section grow thoroughly well at the cooler end of this house. At this season the lower foliage of these plants may be injured if exposed to the full glare of the sun, and the plants should be thinly shaded, independently of the other occupants. Strong healthy specimens will now be rooting freely, and any of the aerial roots that are long enough may be pegged or tied down so that they will root into sphagnum-moss, taking care not to crack or break them.

By enticing the roots down into the moss, the plants grow with much vigour, and retain their leaves for a much longer period. The rare *Zygopetalum Perrenondii* also thrives admirably in the Cattleya-house. The plant is now growing freely, and as the flower-spikes push up in conjunction with the young breaks, it must not be disturbed at the roots until the flowers have faded. Afford water often enough to keep the roots moist. Plants of *Angraecum falcatum* and *Aërides japonicum* that have been wintered in this house may now be removed to the warmest part of the cool-house. Both species deserve to be generally cultivated for the delicious fragrance of their flowers.

Orchid Pests.—Owing to the increase in warmth in the house, small yellow thrips will multiply greatly, and these destructive insects must be kept under by every means available. Before fumigating or vaporising the house the atmosphere should be made moist, and at the same time a moderately high temperature maintained. This will induce the insects to emerge from their concealment and be the more easily killed. If thrips are numerous, fumigate the house in the evening and the next morning, on two consecutive evenings.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

The Flower-beds.—The spring-flowering plants in these, are very forward; Wallflowers, *Myosotis*, *Aubrietias*, *Daisies*, *Auriculas*, and many others, are already showing flower. The various species and varieties of bulbs are equally so, especially the *Hyacinths* and *Tulips*. The surface of the bed, if it be not carpeted with other plants, should be lightly pricked over with a small fork, in order to aerate it, and in that way assist growth. Those plants which are set out in regular lines, or where more than one sort is used in a bed, should be examined, and the side-growths pricked off where encroaching on neighbours, so as to maintain each variety separate as regards the colour of the flowers. Let the edgings of the beds be made thin and neat, and if Box-edgings are in use, these should be clipped after danger from frost is past. Daffodils and *Primroses* in sheltered spots are already flowering freely, and the Winter *Aconites*, *Snowdrops*, *Periwinkles*, and the *Violets*. In western and northern counties severe frosts and snowfalls have recently occurred, still everything indicates to the gardener that the busy season has arrived.

Sweet Peas.—Than these fragrant free-flowering annuals we have none superior, and no summer flower-border seems to be complete without them. The Sweet Pea has been greatly improved in form and colour during the last few years, and by no one more so than by Mr. Eckford, of Wem, Shropshire, whose varieties seem now to be acknowledged the best in the world. The varied hues of mixed colours in some varieties, the gorgeously and brilliant coloured selfs of others, make Sweet Peas peculiarly adapted for cutting. It is to be hoped that the new dwarf Pink Cupid will be a much freer flowering plant than the White Cupid, about which a fuss was made two or three seasons ago, and which appeared a good deal better in the photograph than the writer ever saw it in a garden. The best time for sowing seeds of Sweet Peas is towards the end of this month in the open ground, and the sowing is practically of the same nature as in the case of edible Peas, excepting that the seed should be sown even more thinly. If a position in the garden requires to be screened from view during the summer, or the plots of vegetables hidden from view, the Sweet Pea is the plant for the work. The soil should have been well manured and dug. It is advisable to coat the seed with red-lead previous to sowing it, as a defence against pheasants and mice. The rows should be provided with Pea-sticks when the plants are about 3 inches high, especially selected as regards neatness; and in very dry weather, copious applications of water should be made in order to maintain the plants in health; moreover, those Peas that are to furnish flowers should have all the seed-pods removed as soon as seen, or the flowering period will be shortened. If seed is required, a few rows should be set apart for seed bearing.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Young Vines.—Any of the eyes or cuttings, furnished with one bud each, when well rooted, may be shifted into 60's or 48's, accordingly as the shoots are strong or weak, the roots at the sides being

slightly freed from the soil before re-potting. Let the soil be well warmed, and the ball sunk so as to cover the young wood to the depth of a quarter of an inch with new soil, and the potting done with firmness. Remove them to a hot-bed having a bottom-heat of 80°, and top-heat of 60° to 65°, affording air whenever the weather permits. Support each stem with a stick, afford tepid-water, and shade from bright sunshine for a few days. The next shift may be into an 8-inch pot after re-potting the plants, and later if wanted to fruit next year into an 11-inch one, always delaying to repot till the roots have permeated the soil and begun to coat the sides of the ball. Vines for forcing for fruit next year should be two years old, or at least they are generally the best for the purpose; and these should be grown in 8-inch pots the first season, taking care that the current season's growth is thoroughly ripened, and in the autumn the stems should be cut back to within two buds above the level of the soil, and kept cool and at rest during the winter. In early spring, these cut-backs may be started to grow in ainery, warm-house, or pit, where full sunlight can be afforded; and when shoots 4 to 5 inches long have been made, turn them out of the pots, carefully picking and shaking the soil from the roots, and repot them in clean pots of the same size as those they came out of, affording the pots drainage to the depth of 2 inches, and working the soil among the roots, and taking great care not to break off or injure the new shoots. After repotting, afford a moderate amount of warm water, and a few days afterwards remove all but the one strong shoot, should more than one of these have formed. The next shift, when well rooted, should be into 11-inch pots. Suitable soil for pot-Vines is one consisting of light turfy-loam, one peck of mortar-rubble broken small, and to each barrow-load of soil a 7-inch potful of bone-meal. Until the roots begin to permeate the soil, let water be sparingly afforded, and afterwards only when the soil is approaching dryness. Syringe once when fine, and as the season advances twice a day. The temperature should range from 60° to 65° at night, 70° on dull days, with a rise of 10° by sun-heat, and 5° beyond this after closing theinery. Afford ventilation on warm days when the warmth inside reaches 70°, and increase the amount gradually as the temperature continues to rise. Aim at obtaining large firm leaves, and canes that are short between the nodes or joints. Pot-vines may be fastened to upright sticks or to wires fixed to the roof, forming in the latter way pleasant shade for pot-plants growing beneath. Let the laterals and tendrils be frequently kept in check by pinching the first and removing the second, and secure the cane as it lengthens.

Vine Borders.—If any border in course of making is not finished so far as it is intended to extend it this year, the work should not be any further delayed if Vines raised last season from eyes are going to be planted in it. These Vines should now be placed in a warm house to encourage them to make a start, and when well started into growth let them be turned out of the pots, the soil shaken from the roots, and the latter laid out at full length, and covered with a nice mixture of fire soil to the depth of 4 inches. The distance of the Vines apart will depend upon the variety, 3 feet for weak growers, and 5 feet for strong ones. Avoid planting close to the hot-water pipes, or the front wall of theinery—6 inches should be the nearest approach to either. On the renewal of growth in the plants, disbud the canes by degrees, and retain the best placed and strongest shoot to form the future Vine, which should be left as low down as the position will allow. The remainder of the treatment should correspond with that advised for potted Vines in general.

Late Vines.—Those which are intended to carry late crops should now be started, so that the fruit will have time to become quite ripe by the end of the month of September, after which date our sun has scarcely any effect on the maturing of the fruit. The inside border, if but slightly moist, should receive a thorough application of tepid water. Let the Vines be syringed once or more often daily, and generally carry out previous directions in regard to the Vine.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

Cauliflower Plants under Protection.—Those plants which have been protected by cold frames may be transplanted during mild weather, choosing a warm border and well-enriched soil. First, 1st drills be drawn 3 inches deep in which to plant them at a

distance of 18 inches apart, and 2 feet will be found sufficient space between the rows. After planting, place Spruce twigs thinly round the plants, as a protection against frost and wind. Let the tops of hand-lights in which Cauliflower plants are growing be lifted off in fine weather, in fact ventilating them at all times when there is no frost. Remove weeds and stir the soil, affording water if the soil is dry. Cauliflowers raised from seeds sown last month will be large enough to prick out on to a gentle hotbed or in boxes placed in a warm pit or greenhouse, to bring them forward and fit to plant out in the beginning of April, keeping them close to the glass meanwhile. Sow seeds in gentle warmth, and also on a south border, of Early London, Early Forcing, Magnum Bonum, and Walcheren varieties.

Leeks.—Seed of the Musselburgh and other varieties may be sown for the main supply in shallow drills, or broadcast in beds, treating them similarly to the Onion, only the seeds may be sown more thickly, transplanting the plants during May and June. The plants raised from seeds sown under glass in January will require to be pricked off, but not to be unduly hurried by artificial warmth; rather aim at keeping them sturdy by careful ventilation, and by affording them a place on a shelf near the roof. The remains of last year's crop should be dug up and laid in close together in deep trenches in a shady place for future use.

Tomatos.—The plants that are in bearing will be improved and strengthened by top-dressing them with rich soil mixed with some artificial manure, guano, &c., affording water soon afterwards so as to carry it to the roots. Plants now in bloom or setting will be benefited by a dryer and slightly more artificial warmth in cloudy weather, which will admit of more air being afforded. The pollen should be detached and distributed by means of a soft brush. A sowing of seed may now be made of out-door varieties, such as Conqueror, Large Red, Early Ruby, Frogmore Selected, Sutton's Magnum Bonum, and Maincrop.

General Remarks.—Wheel manure on vacant plots, and without loss of time get the land dug after the manure is spread; or if this cannot be performed, put the manure into good-sized heaps, under the protection of a covering of soil; and do not let most of its good properties be driven off by wind, rain, and sunshine, as would occur if left exposed. Walks may be re-laid, and Box and other edgings laid or made good.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Coleus.—Plants which have been grown in a light position in a warm house will now yield a good supply of cuttings, which may be placed either singly in the smallest sort of flower-pots, or to the number of four or five round the side of a 5-inch pot; of the two methods the former is preferable, because, on being repotted the plant is not checked much, whereas, in the other case, some of the roots are sure to be damaged. The soil should be light and sandy, and newly-potted plants plunged in gentle bottom-heat in a frame, &c., after affording them water. Shade them from the sun when very bright till air may be freely afforded. Where there is no demand for large specimens, plants not advisable to keep any longer may be used for affording cuttings, and then thrown away. If young plants be grown on freely they soon become useful in decorative arrangements.

Nepenthes.—Any plants that have become leggy should be cut down to within 6 inches of the base, the stems being cut into lengths of two leaves to each, inserted in sphagnum-moss and sand, and plunged in a brisk moist heat to form roots, which they soon do. Any which have made four or five leaves, and are not required for stock, may be pinched at the tip in order to get them to break and form pitchers, for if the plants are allowed to run away, they soon become incapable of producing them. Basketed plants that need more space, may be placed, without any disturbance whatever, inside a new basket, filling in and around it with lumps of peat, charcoal, and sphagnum-moss. If *Nepenthes* are infested with thrips, use Richards' XL All, which at once destroys the perfect insects, but not the eggs.

Conservatory and Greenhouse Climbers will now need attention. *Tacsonias*, *Coleus*, *Passifloras*, *Rignonnias*, and others of a similar habit of growth, should have the growths well thinned out, cutting them back close to the main stem; those of a close-growing, bushy nature, such as *Stauntonia latifolia*, &c., should have all weakly growths cut away, as if these

be allowed to form dense masses, they fail to flower satisfactorily. *Swainsonia galegifolia alba* is an extremely useful climber to grow where cut flowers are in demand; and for covering bare places quickly, *Stepotosolen Jamesoni* will also be found to answer this purpose admirably, and it flowers freely, making a fine display. Advantage should be taken after the pruning is done to thoroughly cleanse the structure, and afterwards to afford the climbers themselves a thorough syringing with some suitable kind of insecticide, Tobacco-water, &c. Examine the tubs, pots, and borders in which the climbers are growing, and where necessary replace any spent or soured soil, giving particular attention to the drainage in all cases; and in cases of bad drainage, replanting in new soil may be found desirable. Plant-borders in the conservatory may be rendered attractive by dibbling in cuttings of *Selaginella denticulata*, after having planted spare plants of *Pteris serrulata*, *P. s. virens*, *Adiantum*, *Asparagus plumosus nanus*, *Ophiopogon Jaburan variegatum*, &c.

THE HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Balvoir Castle, Grantham.

Grape Vines.—Some varieties of the Grape-vine succeed on south walls in warm districts in extra warm summers, the fruit being of better quality than the ordinary imported Almeria and other Spanish wine Grapes. If more attention were devoted to these Grapes in the matter of culture, our out-of-doors Grapes would be much improved, and in seasons when the Grapes do not thoroughly ripen they could still be made into a palatable wine by using a certain proportion of cane-sugar with the must. The Vines should now be pruned, leaving the strongest, best ripened shoots of last season's growth as fruit carriers. Sometimes young shoots of 8 feet and upwards in length can be laid in, and old canes will sometimes have to be removed to make room for such, and if these are nailed in, in a wavy line instead of a straight one, the buds will break regularly; the weak shoots of last year's growth must be spurred back to one or two buds, and these will in their turn furnish bearing-wood another year. Strong young rods of Vines may sometimes be trained between the fruit trees on a wall or along the upper part of a wall, and thus fill up spaces which would be otherwise unutilised.

Mildew is the greatest foe to the Grape-vine out-of-doors, and if it be allowed to extend unchecked, good Grapes cannot be obtained. If the Vines have been attacked with mildew the previous year, the cause of attack should be sought for, and remedial measures taken forthwith. Mildew is traceable to poverty of the soil, excessive moisture, or extreme dryness at the root, cool, and consequently wet summers; in short, anything which causes a check to the growth of the Vine, and with proper attention most of those may be remedied. The resting spores of the mildew fungus should be destroyed, i.e., after pruning, take the Vines from the wall, and with a paint-brush thoroughly wash the wood with Gishurst Compound Soap, using it at the rate of 4 oz. dissolved in 1 gallon of rain-water, the wall being also washed with the same. When the Vines are again fastened to the wall, remove the crust of soil with a steel fork to the depth of 4 inches, and if it be infertile afford a liberal dressing of farmyard-manure, and replace the old soil with turfy loam that has been stacked up for six months. The best varieties of dessert Grapes for out-door cultivation are *Esperione*, black, and *Royal Muscadine*, white; these give good-sized berries if properly thinned, and ripen much earlier than *Black Hamburgh* or *Foster's Seedling*. *Miller's Black*, if thinned, is not to be despised.

Peaches and Apricots.—The trees, when in bloom, should have some moveable kind of protection afforded them, than which nothing is better or more lasting than thick canvas roller-blinds. Failing these, doubled fish-netting may be used, and it is not necessary to remove this, but it may remain till the fruit is safe. If bloom be scanty, a camel-hair pencil should be passed over the flowers at intervals of three days, choosing the middle hour of the day for this operation.

HARDY PRIMROSES.—The seeds should be sown thinly. An *Auricula*-fancier of my acquaintance, when he sows his seeds from the finest fertilised flowers, in order to sow them thinly on his dark soil, dusts a little fine and dry-powdered whiting over them, and then shaking them in it they become white, and in this way he is able to distribute the seeds evenly over the surface. *R. D.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR MARCH.

TUESDAY,	MARCH 8	Royal Hort. Soc. Com.
MONDAY,	MARCH 14	Annual Meet. United Hort. Ben. and Prov. Inst. at Caledonian Hotel, at 8 P.M.
TUESDAY,	MARCH 15	Cornwall Daffodil and Spring Flower Show at Truro (two days).
THURSDAY,	MARCH 17	Linnean Society Meet.
TUESDAY,	MARCH 22	Royal Hort. Soc. Coms.
WEDNESDAY,	MARCH 23	Torquay Gard. Assoc. Spring Sh.
SATURDAY,	MARCH 26	Royal Bot. Soc. Gen. Meet.
TUESDAY,	MARCH 29	Spring Show of Shropshire Hort. Society. Exhibition of Royal Hort. Soc. of Southampton (two days).
WEDNESDAY,	MARCH 30	Royal Bot. Soc. Spring Show at Regent's Park.

SALES FOR THE ENSUING WEEK.

MONDAY,	MARCH 7	Hardy Perennials, Iris, Roses, Greenhouse Plants, &c., at Protheroe & Morris' Rooms.
TUESDAY,	MARCH 8	Orchids, at Protheroe & Morris' Rooms.
WEDNESDAY,	MARCH 9	Lilies, Roses, Gladioli, Carnations, &c., at Protheroe & Morris' Rooms. Roses, Fruit Trees, Shrubs, Bulbs, Plants, &c., at Stevens' Rooms.
THURSDAY,	MARCH 10	Border Plants, Shrubs, Lilliums, &c., at Stevens' Rooms.
FRIDAY,	MARCH 11	Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—41° 7°.

ACTUAL TEMPERATURES:—

LONDON.—March 2 (6 P.M.): Max., 48°; Min., 37°.

PROVINCES.—March 2 (6 P.M.): Max., 46°, Scilly; Min., 37°, Aberdeen.

OUR anticipation in last week's issue, that the annual meeting of the National Chrysanthemum Society would be unusually interesting, was more than realised. The spirited though orderly discussion that took place on Monday evening last showed conclusively that there are serious defects in the management of the Society's affairs, and from the remarks of several of the members of the committees, it seems more difficult to apportion the responsibility than it should be. The Society has been surprisingly successful in many ways. Each year it has become numerically stronger, and its income has increased. Dealing with one flower only, and that almost entirely from the exhibition standpoint, the importance the Society has attained is the more remarkable. But there has been a disposition on the part of the committees to travel both faster and farther afield, and the expenses have increased at such a rate as to more than equal the income. It was on this score that criticism was offered at Monday's

meeting, the speakers having little difficulty in proving, that although the statement of accounts submitted by the committee showed a balance of nearly £40 to the good, there had, practically, been a loss on the year's work. To meet the present liabilities, without touching the reserve fund, the management had treated as assets many items that, if negotiable at all, would realise next to nothing. We assume the general committee should take responsibility for the drafting of the accounts, yet the Secretary declared that they had been submitted to the committee, that they had been passed without criticism, and after this had taken place, some members of the committee denounced the accounts at the annual meeting, and the treasurer stated that he had only been a treasurer in name!

The report read by the secretary was couched in most re-assuring terms. "Its work (the Society's) during the past twelve months was carried on with energy and success; its resources are as great as ever, its supporters more numerous; it is financially sound, and its prestige knows no diminution." Unfortunately this is not quite correct: the Society has undoubtedly lost influence, and for some time past its reputation has not been exactly that which should characterise so strong a Society.

The report concluded by announcing that through ill-health the honorary treasurer had decided to resign his position. The receipts for the year had been £1123 9s. 10d., the principal items of which were £304 13s. from subscriptions, £300 from the Royal Aquarium Company, £121 4s. 6d. from the sale of medals, &c., to affiliated societies; £115 14s. from entrance fees and rent of space at exhibitions, £75 1s. affiliation fees, and £81 2s. from advertisements in schedules and catalogue. On the expenditure side, as much as £532 16s. was spent upon prizes and medals, and £18 18s. judges' fees.

The adoption of the Report having been formally moved by Mr. T. W. SANDERS from the chair, and duly seconded by Mr. H. J. JONES, Mr. STARLING explained his position in regard to the treasurership, and expressed decided disapproval of the balance-sheet. He had been a treasurer in name only, and though all monies received by the Society had not passed through his hands he maintained that they should have done so. He had not the necessary time to devote to the duties of the office, but regretted that he was not leaving things in a more satisfactory condition, declaring that the Society still owed about £90, and that the assets were not equal to meeting this.

Then followed a criticism by Mr. GEO. GORDON, who said that there was insufficient control exercised over the items of expenditure, which were ever growing. In 1891 the cost of luncheons, &c., was £15, it is now £24; and in the same year the deficit upon the annual dinner was £15, and it is now £18. This expenditure was more, even in 1891, than it should have been, and the annual dinner should be made to pay its way. Show expenses at the Royal Aquarium in 1891 were £12, they are now £32. The Society had voted medals, illuminated addresses, &c., to worthy persons no doubt, but the Society should pay its way before disbursing such honours. A lesson might be taken from the Royal Horticultural Society, who, when awarding last year sixty medals in celebration of a certain event, had omitted to award a single medal to any member of the Council, although several of its members were exceptionally deserving of the honour. The

National Chrysanthemum Society "should not spread its tail, for every ass to bray at, or fool to kick." Mr. GORDON referred to the expenditure of the coming year, stating that the committee had proposed to award £610 at the four shows, or including special prizes, £714, only £124 less than in the Jubilee year, when the income was greatly augmented. Mr. GORDON concluded by moving the following amendment to the report:—"That the report and financial statement be referred to the committee, with instructions to prepare a proper balance-sheet; to prepare an estimate of the income and expenditure for 1898, and to report on the advisability of a reduction in the number of exhibitions, or in the prize-money, during the current year, and to submit the same to an adjourned annual meeting to be held that night three weeks at six o'clock."

The amendment was seconded by Mr. J. W. MOORMAN, who declared that whilst the balance-sheet showed a sum in hand of £38 odd, the society owed £85 11s. 6d. In supporting the amendment, Mr. BEVAN maintained that all debts must be paid and vouchers obtained before the accounts could be handed over to a new treasurer, and he might say that the gentleman it was proposed to nominate to this position would refuse to stand before this had been done.

Then came an explanation from the secretary, who stated that the financial position was due entirely to the action of the Schedule Revision Committee, who were increasing yearly the value of the awards offered for competition. He had stated that during the year there had been 114 new members added, but this was largely discounted by the fact that 85 of the old members had not paid their subscriptions. If the policy of the Schedule Revision Committee was not modified, the Society would be landed in bankruptcy.

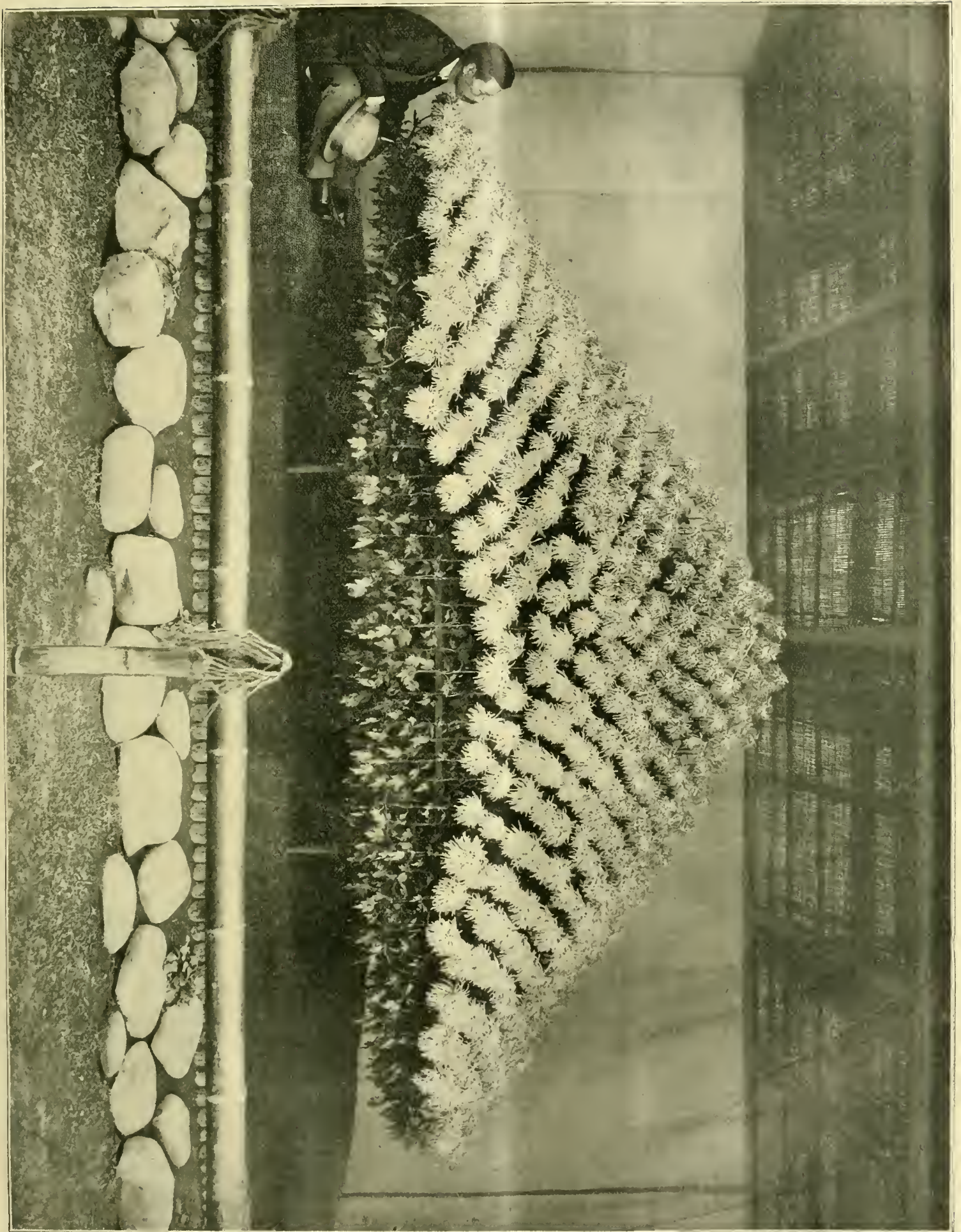
Mr. W. H. LEES, a member of the above committee, rejoined by stating that Mr. DEAN himself had urged upon the committee the necessity of making some of the increases now the subject of complaint.

The question of auditing was opened, and Mr. MOORMAN complained that at the time and place the work was to have been done, neither auditors, books, nor secretary could be found. This was satisfactorily explained, however, and was due to the proprietors of Anderson's Hotel having given insufficient notice to the secretary that they were unable to provide a room as arranged. Mr. H. J. JONES testified to having witnessed for two hours the progress of the audit at the Aquarium tavern, and he was surprised at the thoroughness with which every detail and voucher was examined.

The amendment having been formally put from the chair, and Messrs. ADDISON and HARMAN PAYNE appointed tellers, the result was 82 ayes and 6 noes. Put subsequently as a substantive motion, the amendment was carried unanimously.

On the motion of Mr. CHOLMELEY, it was decided that the amended accounts should be printed and sent to members seven days before the adjourned meeting is to take place. Mr. WELLS asked why a form should not accompany these prints, in order that members living at a distance might vote by proxy; but the Chairman explained that one of the rules declared that voting must be by ballot, or by show of hands, and it was not permissible to alter rules unless previous notice be given.

The members afterwards separated, and the remaining items upon the agenda will be con-





sidered at the adjourned meeting. On that occasion it is very important that all members who can should be present, so that the amended accounts may be given the consideration it is desirable that they should receive, and that the election of committees, treasurer, secretary, and auditors be made by a meeting that will command respect from every member of the Society. There should be no fault-finding unless a purpose is to be served thereby; no exposure for mere exposure's sake, nor any hesitation in enquiring into the details of expenditure or management—if the object be reform. Surely there are a few business-like and influential members, free from personal dislikes and prejudices, who are capable of leading the debate in such a manner as to effect what is most desirable, without creating such disorganisation as may partially paralyse the society for a twelvemonth.

There is one point in the amendment carried the other evening with which we are in the fullest accord, namely, the instruction to the committee to consider the advisability of making a reduction in the number of shows annually held. The September exhibition, for instance, as we have stated again and again, has never been other than a discredit to the Society, and it has no influence whatever in popularising the Chrysanthemum. In our opinion, too, the Society would do well to confine itself to its special business. It should not attempt to form a general exhibition, and allot medals and awards which only tend to belittle similar awards made elsewhere. It is true that the same judges exercise their functions in other societies, but that does not detract from the fact that no special society can hope to win reputation when it steps out of its own special and, in this case, well defined work. It would be inconsistent however, with the maintenance of reputation, were the Society to repudiate a contract already made by its accredited committee, with the Royal Aquarium Company, or other parties, and for this reason it may be found inexpedient to take action in this matter that will affect the current year, though the sooner the Society disavows its connection with the Aquarium the better.

Flax in Ireland.

SOME time since we drew attention to the fact that the Supply Association of Belfast had been lending the services of a Dutch cultivator, or expert, for the benefit of Irish cultivators; but now we learn that Flax-growing is decreasing in the land where it ought most to be prized. It yields a fair profit, and Belfast is the largest linen-producing centre in the world, some of the manufacturers being among the most enterprising spirits of the time. For the facts: in 1880 there were 157,534 acres under cultivation; in 1893 this had fallen to 67,487; but a fillip was given to the trade by a rise in prices, a widening demand, and other causes, and the record of acreage for 1894 was 101,081; 1895 found the number of acres reduced to 95,293; 72,235 in the year following; and last year the record was reduced to 60,000 acres, very much less than half the acreage under Flax in 1880. All this in spite of the efforts of the Flax Supply Association to improve the conditions of culture, the improvement of the seed, and other minor matters. True, Flax is a starving crop, and a disagreeable one to handle, but surely this is not the sole deterrent, the crop, as we are assured, being a paying one; and one seems forced to the conclusion that the cause of decay must be looked for in the cultivators.

GIGANTIC CHRYSANTHEMUM.—Mr. FOUKOUBA, the Director of the Imperial Gardens at Tokio, sends us through Mr. G. SCHNEIDER, a photograph, of which a reproduction is given in our supplementary illustration (fig. 56). The specimen is 5 mètres across (about 5½ yards), 3·30 m. (10 feet through), and 2·10 m. (6 feet, 6 inches) high. The number of flowers is 812, each flower being on the average 8½ inches in diameter. The variety is an unnamed one, of a deep rose colour, striped with white.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Fruit and Floral Committee will be held on Tuesday, March 8, in the Drill Hall, Whitehall Street, Westminster, from 1 to 4 P.M. At 3 o'clock, the Rev. Professor GEO. HENSLOW, M.A., V.M.H., will lecture on some of the plants exhibited.

HORTICULTURAL CLUB.—The usual monthly dinner and *conversazione* will take place on Tuesday, the 8th inst., at 6 P.M. The subject for discussion will be "Cinchona in India," to be opened by Mr. J. F. GAMMIE, formerly Deputy-Superintendent of the Government of Bengal Cinchona Department.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held on Monday, March 7, when a paper will be read by Mr. W. IRVINE (late Bengal Civil Service), entitled "Land Survey and Valuation in Northern India." The chair will be taken at 8 o'clock. Members hoping to join the party at Manchester on April 20 and 21 are requested to fill in and return, at their convenience, the fly-leaf attached to the circular letter forwarded to them on the 7th ult.

THE SAN JOSÉ SCALE.—In reply to a question put in the House of Commons, the President of the Board of Agriculture, Mr. LONG, said that the subject was being carefully investigated, and that any assistance which could be given to fruit-growers would be rendered when requisite. In the meantime, we have not heard of the introduction of the scale into this country. The samples sent to us, being Oranges and Lemons, with the very common mussel-scale.

JUGLANS RUBRA.—At the January meeting of the Vienna Horticultural Society, Herr OTTO PFEIFER exhibited a fruit of *Juglans rubra*, with a red-skinned kernel. The fruit attracted much attention, and a variety of opinions were expressed by those present as to its growth and hardness in the severe winter climate of Austria. At present it is a rarity.

MAGNOLIAS AS FORCED PLANTS.—We read in the *Wiener Illustrierte Garten Zeitung* of a plant of *Magnolia Soulangeana* having been shown at a meeting of the Vienna Horticultural Society held on January 10, 1898. The forcing of Magnolias is not quite a novelty. The blooms of *M. Soulangeana* are tulip-like, and outwardly of a purple-red hue, and with a pleasant fragrance. As the editor remarks, the variety is not so well adapted for the bouquetists' art as the smaller, snow-white, softly fragrant *M. stellata*, so that the latter would be a much more suitable plant as well as a more floriferous one.

JAPANESE STRAWBERRY-RASPBERRY.—We have always mistrusted the statement that hybridisation of the Strawberry with the Raspberry had been effected in this country, and now we have, it is alleged, a similar hybrid from Japan, and a figure is given in the *Wiener Illustrierte Garten Zeitung* for February, made from a drawing by Herr J. C. SCHMIDT, who remarks that the plant can be raised from seed, and is of easy culture. It appears that the plant has a height of 18 to 27 inches, possesses pretty foliage, and numerous white blossoms, resembling those of the Dog-rose, and it may be cultivated as a fruit-bush or an ornamental shrub. The fruit is like a Strawberry in shape, &c., and in flavour it is halfway between that kind of fruit and a Raspberry. The annual growth dies down in the winter, growing with increased vigour the next season.

THE KEW GUILD.—Members of this excellent institution who were not present at the annual meeting held on the 21th ult., may be interested to know that the event again attracted a number

of "past Kewites" to the familiar lecture-room, where they met most of the present staff, including three ladies. The genial president of the guild, Mr. GEO. NICHOLSON, took the chair, and was supported by a few members of the committee. The report, as read by the secretary, Mr. WATSON, was generally satisfactory, though a proposed alteration in one of the rules gave rise to some discussion. This alteration was desirable in order to admit to the guild botanists and others who have been employed at Kew, but who are not covered by the word "gardener." The discussion was occasioned owing to the indefiniteness of the words used in the alteration, many of those present holding that all persons employed at Kew in any capacity might claim that they filled a "responsible position." The progress made is encouraging, but it is nevertheless felt that a large percentage of gardeners who were once at Kew are still unattached to the guild, in the sense that they do not obtain the society's *Journal*. The present addresses of some also are still unknown, and it is hoped that all old "Kewites" who have not yet communicated with the guild's secretary will do so, and that eventually the *Journal* will find its way to every person entitled to membership. When one of the "present" students had been elected as a representative upon the committee, the rest of the committeemen and the auditors were re-elected. It would be advantageous to the guild if a greater number of members would make a point of attending the annual meetings.

A NURSERYMAN JUSTICE OF THE PEACE.—Mr. GEORGE PAUL, one of the County Councillors for the Cheshunt and Waltham Cross divisions, has been placed on the Commission of Peace for the County of Herts.

FASCIATED BROCCOLI.—Messrs. WATKINS & SIMPSON send us a curious example of their hardy Christmas Purple Broccoli, in which the stem has flattened out, so as to form a mass singularly like the Cockscomb celona.

CÆLOGYNE CRISTATA.—The popularity in gardens of this fine Orchid is unmistakably attested by the photographs we frequently receive from our correspondents who have successfully cultivated it. Some of these have been reproduced in our pages, but for which fact we should gladly place before our readers illustrations of two that have just reached us. One is from Mr. F. TUNBRIDGE, Brooklands Gardens, Broomfield, Chelmsford, and it represents a magnificent plant in a 10-inch pot which, our correspondent informs us, has produced seventy spikes, bearing five or six blossoms each. The plant opened its first flowers on the first of January, and still bears several spikes of perfect blooms. The second is one from Mr. GEO. TAYLOR, The Gardens, Broomfield Park, Dunbar, and illustrates a house of well-grown plants in full flower. They both bear conclusive evidence that the species is very skilfully cultivated by our correspondents.

HIGHGATE AND DISTRICT CHRYSANTHEMUM SOCIETY.—The exhibition of this society is to be held at the Holloway Hall on Nov. 8, 9, and 10 next. Several classes will be added to last year's schedule, making up the total to ninety classes. It was unanimously decided by the committee that the society should discontinue its affiliation with the National Chrysanthemum Society, and award its own certificates and medals. It was also agreed that certificates should be awarded to new varieties of Chrysanthemums if of sufficient merit.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—We learn that there will be as usual two shows held this season, and a sum of £638 awarded in prizes, i.e., £272 for the Spring Show, to be held on April 6 and 7; and £366 for the Autumn Show on September 14 and 15. Such a Society, affording as it does opportunities of viewing the triumphs in flower, fruit, and vegetable culture, and striving to afford great encouragement to all classes of cultivators, deserves very liberal support from those who

are fond of horticulture. The annual subscription is one guinea and half-a-guinea, and the Society gives to its subscribers admission-tickets to their shows to the full value of their subscriptions.

BARREL STRAWBERRY CULTURE.—A recent number of *American Gardening* has an illustration showing a method of cultivation which is new to us. From the illustration, it seems that the barrel is set on end, perforated at regular intervals in the sides, and filled with soil. The plants, we suppose, are inserted in the holes in the side, establish themselves in the soil, and thrive so well that Mr. OHMER, the grower, had last season sixty such barrels, which gave on the average half a bushel of Strawberries to the barrel. Some such device might be tried here, and the use of Jadoo-fibre suggests itself for private if not for commercial use.

SHEEP POISONING.—From the *Strathearn Herald* it appears that some twenty sheep died recently, or had to be killed, in consequence of having eaten the leaves of Rhododendrons in a wood to which they had gained access through a broken fence.

SIR JOSEPH BANKS.—The portrait of Sir JOSEPH BANKS, in the possession of the Royal Horticultural Society, had from circumstances been allowed to acquire a disreputable appearance from the accumulation through many years of smoke and fog. Lately, by the action of the library committee and the trustees of the Lindley Library, this fine portrait has, so to speak, been brought to life again and protected by a sheet of glass. It was painted by T. PHILLIPS, R.A., and there hangs in the same room an engraving taken from the picture. Now that the veil of dirt has been removed, the portrait is seen to be one of great excellence. We may add that there are portraits of the great naturalist in the Royal Society's rooms, also by Phillips, and in the library of the Linnean Society. The portrait of Dr. LINDLEY, of course, of more recent date, has been treated in the same way as the Banksian portrait, and it may be hoped that the Fellows will be so pleased with the work of the joint committee that they will furnish the means for effecting several other desirable operations of the same kind in the Library.

HARDY FLOWERS.—Mr. WARE, of Hale Farm Nurseries, Tottenham, sends us *Narcissus bicolor* Victoria (new) similar to *bicolor grandis*, but differing in being much earlier; it is a first-class plant for forcing, and a most prolific variety. *Colchicum libanoticum*, with lilac flowers produced with its leaves, is one of the very best of spring-flowering *Colchicums*. *Anemone blanda atrocoerulea* is one of the hardiest of winter-flowering plants; it has been in flower at Tottenham since January. *Orchis Robertiana* is also quite hardy, and invariably flowers this time of the year in sheltered spots. *Iris stylosa* and the two varieties *stylosa alba* and *speciosa*, also *stylosa Elisabethae*, have been in flower the whole of the winter. *Eranthis cilicicus* differs from the ordinary winter *Aconite* in that it flowers very much later, and the flowers are of a deeper yellow. *Muscari azureus*, closely allied to the Grape Hyacinth, has been in flower here since the beginning of January, and is one of the best of spring-flowering plants. *Galanthus Ikarie* is probably the best of the green-leaved Snowdrops; this flower is large, and it is very free and a most vigorous growing species, and the leaves are unusually broad, and not plicated.

PUBLICATIONS RECEIVED.—*Park and Outside Art Association*, 1st Report, Louisville, Kentucky. This chronicles the objects of the Society, and the papers read at the meeting called to consider the value of public parks and pleasure-grounds, and the best means of starting and supporting them in Kentucky. — *Twenty-first Annual Report of the Connecticut Agricultural Experiment Station*. The contents of this publication include papers on Mildew, on Lima Beans, Prevention of Leaf-blight and Leaf-spot of Celery, Cause and Prevention of a Fungous Disease of the Apple, Investigations of a Disease of Carrots, and Literature on Fungous Diseases. — *U. S. Department of Agriculture, Farmers' Bulletin*, No. 68. — *The Black Rot of the Cabbage*, by E. F. SMITH, and Division of

Entomology. — *The Gipsy Moth in America*, L. O. HOWARD. — *Agricultural Gazette of New South Wales*, December, 1897. — *The West Australian Settlers' Guide and Farmers' Handbook*, Part V., devoted to questions relating to Soils and Manures. — *The Newcastle Daily Chronicle Edition of the British Almanac and Year-Book for 1898*, contains not merely much local information, but a wonderful amount of general and miscellaneous matter. — *Der Gärtner und Blumenhändler*, Berlin, February 2, 1898. — *Journal de la Société Nationale d'Horticulture de France*, Janvier, 1898.

KEW NOTES.

CALADENIA ALBA.—The genus *Caladenia* occupies a similar position among Australian plants, that *Disa* has among the plants of South Africa. There are about thirty species, all terrestrial, with small underground tubers, annual grass-like leaves, and erect slender scapes bearing one or a few flowers, in which the sepals and petals are sometimes produced into long tails. None of the species have hitherto attracted the attention of horticulturists, although some of them are showy. A pan of *C. alba* is now in flower in the Orchid-house at Kew. Each plant has a solitary linear leaf 6 inches long, a thin green erect hairy scape 8 inches long, and a white flower 1 inch in diameter, with narrow lanceolate sepals and petals, the dorsal sepal curved over the column, the other segments pointing downwards; lip half-an-inch long, recurved, with two rows of hairs forming a callus. Benthams makes this a variety of *C. carnea*, the type of which has pink flowers.

PALISOTA MACLANDII.

A large plant of this is now in flower in the Nepenthes-house at Kew. It was first described by Professor Maxime Cornu in the *Bulletin de la Société Botanique de France*, 1896, p. 30, plants having been raised and flowered in the Jardin des Plantes, Paris, from seeds received from the Ivory Coast, W. Africa, in 1894. It has branching stems a yard high, 1 inch in diameter, and glossy-green leaves, usually in whorls of three or four, each a foot long, 3 inches wide, lanceolate, petiolate, covered with soft hairs, the margins of the petiole having dark brown hairs an inch long. The flowers are borne on erect panicles a foot long, and they are very numerous, about half an inch across, white and purple. There does not appear to be any specific difference between this plant and the specimens of *P. thyrsoïdora* in the Kew Herbarium. Professor Cornu, however, says it differs from that species in having narrower leaves with longer petioles and woodier stems. It is a handsome plant for large tropical houses. A figure of it has been prepared for the *Botanical Magazine*.

DRACENA THALIOIDES.

A large example of this West African species is now flowering freely in the Palm-house at Kew. It has numerous stems, the tallest being 5 feet high, and the sub-erect, distichously-arranged leaves are from 2 to 3 feet long, the upper half of which is a bright green lanceolate blade, 3 inches long, the lower half being a narrow-channelled grey-green petiole, with a broad sheathing base. As a foliage plant it has its attractions, but it is much more ornamental when in flower, its racemes being 2 feet long, branched, and crowded with long, slender, tubular flowers, 1½ inch long, the segments linear, ¾ inch long, and recurved, their colour being white, tinged with purple; they are powerfully fragrant. The Kew plant flowers freely every year. It was introduced into cultivation about thirty-five years ago, but only came into prominent notice four years ago, when it was figured in the *Gardeners' Chronicle*, vol. xv, 1894, p. 137.

ALPINE AND HERBACEOUS

Plants are flowering early and numerous in the Rock Garden and the Alpine-house at Kew. In the former the *Chionodoxas*, both *Lucille* and *Sardensis*, are represented by thousands, painting the slopes blue in some places with *Diffodils*, *Hellebores*, and even *Snowdrops* occurring abundantly and in variety. Such rarities as *Shortia*, *Soldanella*, *Iris orchoides*,

and *Tecophylea*, are in flower in sheltered nooks. In the Alpine-house, which is rapidly filling with plants of interest, the following may be seen in bloom: *Fritillaria aurea*, *Anemone vernalis*, white *Chionodoxa*, *Soldanella pyrolæfolia*, *Romulea Linæsi*, *Corydalis Kolpakowskiana*, *C. rutæfolia*, and some good examples of the best of the blue *Primroses*. The *Saxifragas* and *Muscari* will soon be at their best, *W. W.*

BOOK NOTICE.

A FLOWER-HUNTER IN QUEENSLAND AND NEW ZEALAND. By Mrs. Rowan. (London: John Murray.)

SOME of our readers may have had the opportunity of seeing the very beautiful presentments of Australian plants which were shown in London not long since, and they will equally welcome the present volume. Others to whom the attainments of the authoress may not be familiar may be assured that in this little volume they have the record of a series of excursions in Northern Queensland and in New Zealand, which, for variety, interest, adventurousness, and personal danger, can have hardly been exceeded, even by the most intrepid of travellers. The descriptions are highly picturesque and animated, and they deal with districts little known to the ordinary traveller, at least, so far as Queensland is concerned.

The aim and object, and the precise dates at which these wonderful excursions were made, are not very clearly made known. There is, in fact, a want of cohesion and continuity in the records, which are at times rather puzzling. The preface leads one to infer that the authoress is herself an Australian, though it is not so stated. At any rate, her desire to complete her collection of floral-paintings carried her "into other colonies, Queensland, and some of the remotest parts of the great continent of Australia." Incidentally, we learn that the authoress has resided, at least temporarily, in New South Wales, and in Western Australia. The work is divided into two sections, the first devoted to Northern Queensland, the second to New Zealand.

It is the first section that is most novel to the ordinary reader. The lady seems to have travelled unattended. She commences her narrative at Rockhampton, and proceeds thence to Torres Straits and the Louisiade Archipelago. Her journey is mostly by sea, but at intervals she lands and penetrates far into the interior in her search for flowers, and there meets with a constant series of adventures, such as one would expect to find in the pages of a highly flavoured romance. Deserts and jungles, natives of the most debased type, cannibalism, storms, tropical heat, snakes, Mango swamps, fever, mines, caves, forest-fires, runaway-horses, mosquitos, rough travelling of every description, even to travelling on a cow-catcher—nothing daunts this adventurous lady. Her descriptive powers are much beyond the average, so that it is easy to picture the scenes. Unfortunately, the author's knowledge of natural history is not equal to her zeal, so that it is not possible in all cases to know of what plants she is speaking. The specimens hitherto unknown were, we are told, "named by the late Sir Frederick Müller"—meaning, of course, Baron Sir Ferdinand von Mueller. The error is in itself trifling, but it does not increase the confidence of the botanical reader.

It is interesting to note that the Cocoa-nut fringes the coast line off Murray Island, that tree being scarcely recognised as an Australian native. At Somerset, Cape York, she remarks that, "excepting three trees, there is absolutely not one plant I have ever seen before; and at a little distance from the sea, and sheltered from the wind, the jungle is even more beautiful than on the Johnstone River, which I thought nothing could surpass. There is a magnificent Palm-tree beside the Jardine's house, which is not known anywhere else except in one spot a few miles away; and the native Fig-trees, now covered with fruit, are magnificent-looking, with wonderful colouring,

their young leaves of a delicate pink, shaded off to a vivid green in the older, while they are as large as most of our English trees. Another tree, with clusters of blossoms, like a Jessamine, is a mass of starry blossoms, and the whole air is redolent with its scent." It is rather provoking to read such descriptions and not to know what they refer to.

Our notice has run to such a length, that we must forego reference to the section relating to New Zealand. Moreover, the wonders of those islands are more familiar to the reader than the remote jungles and tropical forests of Queensland. A map and several pretty illustrations adorn the work, the greatest charm of which, however, consists in the vigorous prose in which the authoress describes her adventures. It is needless to say, we recommend everyone interested in Australian travel to possess themselves of the book.

less be the best horticultural manure in the market—for we have been told so again and again, and what is more, asked to say so sometimes. In addition, there were bones broken to various sizes, bone-dust, Peruvian guano, nor must we omit to mention the particular manure known as Smyth's Fertiliser, and described by Mr. Smyth as "a true gardener's friend." We saw peat and peat, loam and loam, of different characteristics, and intended for plants of diverse requirements. The materials requisite for the making of a good rooting medium for Orchids appear to be given much consideration. Sticks in many sizes for the support of plants, Bamboo-canes, wooden labels in a dozen sizes; tying materials, such as tarred string and raffia, an article known by so many names, and which is derived from the Palm Raffia ruffia, and probably another species. But in tying we require knives, and hence there were pruning and budding-

DUMELOW'S SEEDLING APPLE (SYN. WELLINGTON AND NORMANTON WONDER).

This, in my estimation, is the best winter cooking Apple that we possess. I have tried lately upwards of twenty good varieties by cooking them in a different manner, which, to my mind, is the best test, as many varieties which might take the prize in the raw state at a show are very inferior when cooked. Dumelow's Seedling (fig. 57) retains its sharp flavour to the last, and does not shrink much on being cooked, and is in use from the beginning of November to the end of March and later, and it is therefore an Apple that should be more largely grown than is the case at present. Wm. W.

HOME CORRESPONDENCE.

VICTORIA MEDAL IN HORTICULTURE.—An important engagement prevented my staying sufficiently long at the annual meeting, or I intended to put this question on this subject. Was the medal struck to commemorate the Diamond Jubilee of the Queen, or was it to commemorate Her Majesty's long reign? Is the number of medallists rigidly and irrevocably fixed at sixty? If struck to commemorate the Jubilee, then sixty would be a most appropriate number; but if to commemorate the long and glorious reign, why not create, so to speak, one medallist for every year, or, if desirable, every year or part of a year of Her Majesty's reign. This, I think, would be much more of a commemorative nature than the present limited sixty. If such an idea be practicable, I am sure horticulturists in general, and Fellows of the Royal Horticultural Society in particular, would warmly welcome the name of Sir Trevor Lawrence as number sixty-one. *Robt. Fife, Orpington.* [We have before suggested that the President and Secretary of the Society should be *ex officio* members of the order, and we were led to understand that they would have been proposed as such at the annual meeting. As matters stand at present, the medallists constitute a body without a head. Ed.]

ROYAL HORTICULTURAL SOCIETY'S AWARDS.—Doubtless much might be said for the argument to leave well alone in matters of awards at the Drill Hall meetings. But judgment should lean towards deprecating the cheapening of awards by their too-bountiful bestowal. Although my suggestion is not perhaps of any great merit, yet if it turn the scale as against letting alone, my purpose will have been gained. The advantage supplied by the very full descriptions that appear in all the horticultural papers of the various subjects submitted at these Drill Hall meetings is no slight advantage for the trade, and personally I am inclined to think they are capital advertisements to be acted upon by those who are by distance precluded from frequent attendance. I should pay no overwhelming attention to honoured subjects alone. Awards should be curtailed. *H. H. R., Forest Hill.*

THE GARDENERS' BENEVOLENT.—I was truly disappointed by the result of the gardeners' election, having voted, as also my employer, for a deserving subscriber of a dozen years, only to find a non-subscriber at the top of the list—this seems wrong and discouraging. I often ask my brother gardeners to subscribe, and have got many to do so, but the answer they give is often that non-subscribers seem to stand the best chance, and the list of non-subscribers that succeeded at this last election gives colour to this opinion. We thought that the giving a number of votes to each candidate who had been a subscriber, according to the number of years he had subscribed, would have helped him, but this seems to have failed at the last election. *Old Subscriber.*

LADANUM AND LAUDANUM.—Whilst on the subject of Ladanum, and the ancient trade in it, there is a Hebrew word "Lot" used twice in Genesis, and there only, which those learned in Hebrew tell us is identical with the eastern name of Ladanum (see Kitto's *Bible Dictionary* under Lot). The passages are Gen. xxxvii, 25, where Lot was amongst the wares which the Ishmaelites, to whom Joseph was sold, were taking from Gilead to Egypt. Again, Gen. xliii, 11, Lot was one of the presents Joseph's brethren took to him in Egypt. In both these passages, Lot is in the authorised version translated



FIG. 57.—DUMELOW'S SEEDLING APPLE.

SUNDRIES.

ONLY a little less in importance than the acquisition of first-class seeds, does the gardener regard this question of Sundries. And if one reflects for a moment what the term may, and usually does, include, it becomes obvious that without some of them at least, the most skilful gardener, though he possessed the best soil and unsurpassed seeds, would be unable to obtain much success. Thus it is interesting to visit a "horticultural sundriesman," and since Mr. H. G. Smyth has removed from premises in the Coal Yard, Drury Lane, to a new establishment in Clark's Mews, High Street, Bloomsbury, we called upon him, with a view to seeing his new establishment, and maintaining our intimacy with these gardeners' aids to gardening. Proceeding at once to the basement, there was a quantity of bags and packages, representing Clay's Fertiliser, Thompson's Viue and Plant Manure, and specialties of other makers, each of which must doubt-

less be the best horticultural manure in the market—for we have been told so again and again, and what is more, asked to say so sometimes. In addition, there were bones broken to various sizes, bone-dust, Peruvian guano, nor must we omit to mention the particular manure known as Smyth's Fertiliser, and described by Mr. Smyth as "a true gardener's friend." We saw peat and peat, loam and loam, of different characteristics, and intended for plants of diverse requirements. The materials requisite for the making of a good rooting medium for Orchids appear to be given much consideration. Sticks in many sizes for the support of plants, Bamboo-canes, wooden labels in a dozen sizes; tying materials, such as tarred string and raffia, an article known by so many names, and which is derived from the Palm Raffia ruffia, and probably another species. But in tying we require knives, and hence there were pruning and budding-

knives, *sécateurs*, scissors, and gloves for the protection of the hands during pruning. Syringes, too, in variety, and sprayers, steel trowels, sieves, garden pencils, thermometers, wood-wool for packing, scavenger and other descriptions of brooms and brushes, and watering cans. Teak-baskets for Orchids constitute quite a feature in the sundries business, and Mr. Smyth has a Teak cylinder in which vertical ribs are fastened together at top and bottom by a strong copper-wire. Small pieces about 1 inch in length keep the ribs apart at the top, but not at the bottom, so that the cylinder is pot-shaped. Glass house shadings made and fitted to order are sold, which differ considerably in the amount of light they admit to the house, and one specially adapted to particular kinds of plants may readily be chosen. But we must forbear to particularise more, and may add only, that in the Diamond Jubilee year, when honours of various sorts were fashionable, Mr. Smyth was appointed "Horticultural Sundriesman to Her Majesty the Queen."

Myrrh, which is generally represented by Mer in Hebrew. Again, as Professor Henslow points out on page 130, the Hebrew word Roth, translated "gall" in certain passages, was probably opium, which was well known to the ancient Jews. In Mark xv., 23, The "wine mingled with myrrh," called in Matthew "wine mingled with gall," is thought to have been wine mixed with opium; hence we have in the authorised English version "myrrh" used both for Ladanum and for opium. The coincidence is probably accidental, but in view of the origin of the use of Ladanum or Laudanum for opium, is worth noting. *C. Wolley Dod, Edge Hall, Malpas, Feb. 27.*

FREESIAS.—Mr. Wallace seems to have had some good results abroad in the cultivation of Freesias, and I and others who are interested in this favourite flower would be glad of information in regard to the locality the plants are grown, the kind of soil, and to know if the land was prepared in any particular manner for the reception of the bulbs. Many of us doubtless wish that we could obtain from seven to ten laterals, and 136 flowers from one bulb. *W. L., Rood Ashton Gardens.*

FISH-MANURE.—If Mr. C. Blake, whose enquiry I read in the *Gardeners' Chronicle* last week about fish-refuse, would put the fish-refuse into a large square hole, in alternate layers of fish and earth—or, better still, clay, he would at the end of six or nine months have a manure superior to any guano he could buy. I have experience of this. *C. Bellwood, Combe Royal Market Gardens, Kingston.*

THE WEATHER AND THE GARDEN.—The welcome change from extreme mildness to dry, sharp frost has been opportune in checking the untimely opening of the flowers of the Apricot, Pear, and Plum; but the colder winds and sharp frosts which we have experienced this week, namely, 12° on Monday, and 11° on Tuesday and Thursday nights, have given a wholesome check, strengthening the blossoms in some degree at least, and rendering them less susceptible to injury by frost later on. The prospects in this neighbourhood of a good fruit year are at the present moment very favourable, the trees of the Pear, Apple, Plum, and Cherry being literally covered with fruit-buds. The majority of the buds on Pears and Plums have already burst their covering. Raspberries, Currants, and Gooseberries are also in a very forward state. Strawberries, owing, probably, to the cold nature of the soil, remain at present in their ordinary resting condition. *Geo. Woodgate, Rolleston Hall Gardens, Burton-on-Trent.*

CYTISUS PROLIFERUS.—This plant does not seem to be known to our English nurserymen, for I fail to find it in any catalogue I possess. It is a very useful subject in the month of January, the flowers appearing on plants in a cool-house at that time. The flowers are whitish in colour, and unlike most other members of this family are produced in axillary umbels along the sides of the preceding year's growth; these umbels contain each six or seven flowers, and are convenient in size for wiring into bouquets. They are sweet scented, but not so strongly as are those of *C. racemosus*; and unfortunately it is not so easily raised from cuttings as the latter variety, as I have failed to strike one, although they have been tried under various conditions; but if budded on *C. racemosus* it grows vigorously the following season. According to the *Dictionary of Gardening* it was introduced from Teneriffe in 1779. I hope to try its hardiness in a sheltered position eventually, but hitherto have had only one plant large enough for the purpose. *W. H. Divers, Belvoir Castle Gardens.*

POTATOS IN AMERICA.—Referring to note on above in your issue of September 11 last, where it is stated, "It is noteworthy in the respect that English Potatoes are a failure on the farms of the States. Repeated attempts at their cultivation have been made, but sooner or later—generally in a couple of years or so—the variety has dwindled away, and the 'crop' does not equal the seed in weight." In 1890 I sent some seed of my Early White Beauty to Robt. Ballard, Esq., President of Common Council, Syracuse, N.Y. The following year he wrote me a glowing account of the crop and quality produced. On reading the note quoted above, I thought it would be interesting to ascertain what had been the fate of the White Beauty—if it had dwindled away in the eight years' cultivation; and I wrote to Mr. Ballard asking how it had fared with him. I have just received reply from that gentleman, dated the 17th ult. He says:—"I and my son are still planting your Early White Beauty from the same stock as you

sent us eight years ago. We still think the flavour and quality superior to any other variety we get here. The tubers do not grow so large as some other kinds, but we get a good average crop, which last season was quite equal to that we grew the first year we had them." *F. Webber.*

ROYAL GEORGE APPLES, ETC.—There are sure to be many rivals to all varieties that are of special goodness, but whether the original tree of Royal George Apple is one of them I am unable to say, still it may be a satisfaction to know that it was once a popular variety in this locality, where there are some very aged trees locally known by that name; indeed, the locality seems to have been famous for its Apples, and some of the varieties grown were suitable to the soil and climate, and useful. The variety known by the old inhabitants as Royal George, is a robust, compact-growing tree, but as far as I have seen it, is a variety that never crops very heavily. The fruit is flat, smooth, and not very large; handsome, streaked with red on the sunny side. As all the trees here were very old ones, the fruit was never above medium size, and always much grub-eaten, consequently it fell from the tree before fully grown. Cliff's Pippin is another useful local Apple, a large free-bearing good-cooking variety, not unlike Tower of Glamis; the tree is robust, a free bearer, and a fairly good keeper. Swane's Pippin is another old local variety of compact growth, the fruit being not unlike a badly coloured Mère de Ménéage, being green, with a dense bloom upon it a capital cooking variety, with flesh as white as that of any Apple that I know of. Then we have Taylor's Pippin, which is identical with Newton Wonder. The original tree of this is now supposed to be growing at Stanton, near Melbourne; it is supposed to be a seedling from Nermanton Wonder. The garden in which it grows has been in the occupation of the family of Taylor for many generations. As all of the trees of Royal George that I have met with are very aged, they were probably advanced in years before the variety was named Royal George. Whether the variety recorded by your esteemed correspondent, Mr. Powall, as growing at East Bridgeford is the same I am unable to say, but there is another locality near Nottingham famous for Apples, namely, Dale Abbey, where some fine trees of Blenheim Orange, Maltster, and the small but free-bearing Eve Apple, so much esteemed in the local markets, may still be standing. *J. H. Goodacre, Elvaston.*

RAINFALL, ETC., FOR 1897.

ACCORDING to the rain-gauge of Sir J. B. Lawes at Rothamsted, Hertfordshire, which was constructed forty-four years ago, we find that the rainfall for the year 1897, recently ended, amounted to a trifle over 27 inches, which is about 1½ inch below the average for this district of the last forty years. The following table shows the rainfall for each month of the year, with the average of each month extending over a period of forty years; and 1897 more or less than the average quantity.

ROTHAMSTED EXPERIMENTS.			
Rainfall for 1897, and Average for Forty Years.			
Months.	1897.	Average Forty Years.	1897 More (+) or less (—) than Average.
	Inches.	Inches.	Inches.
January ...	1.93	2.45	—0.52
February ...	2.92	1.74	+1.18
March ...	4.20	1.73	+2.47
April ...	1.91	1.97	—0.66
May ...	1.72	2.33	—0.61
June ...	2.73	2.41	+0.32
July ...	0.47	2.73	—2.26
August ...	3.24	2.60	+0.64
September ...	2.44	2.55	—0.11
October ...	0.96	3.19	—2.23
November ...	1.05	2.77	—1.72
December ...	3.50	2.17	+1.33
Total ..	27.07	28.64	—1.57

The rainfall is thus seen to be very unequally distributed. There were seven months with a deficiency, including the usual growing period of April and May; and after but little more than an average fall in June, there was again a deficiency in

July of 2½ inches. The harvest month—August—shows a slight rise above the average amount. The total sunshine recorded for the year 1897, according to the Rothamsted measurements was 1,568 hours, whilst at the Royal Observatory, Greenwich, it was 1,542 hours out of a possible 4,454 hours. In four months, viz., April, May, June, and August, the recorded sunshine at Greenwich was more than at Rothamsted, whilst in each of the other months the record at Greenwich was less than at Rothamsted, the most marked month being September, which shows a difference of twenty-three hours in favour of Rothamsted. During the summer months of May, June, July, and August, the bright sunshine registered at Rothamsted was 878 hours; at Greenwich it was 902 hours; whilst at Bradford, according to the record of Mr. John Clayton given in the *Gardeners' Chronicle* of December 25, p. 449, it was only 780 hours, which was stated to be unusually high for that neighbourhood. Sunshine is no doubt an important factor with vegetation, especially in promoting maturation; and I observe here, as Mr. Clayton does at Bradford, that the formation of fruit-buds is very conspicuous and there is every promise of an abundant fruit-harvest. *J. J. Willis, Harpenden.*

THE ROSARY.

PRUNING THE ROSES.

THIS is such an important part of Rose-growing, that there needs no excuse for referring to it at this date. Far more harm can be done among our outdoor Roses by an injudicious use of the knife than by almost any other course, and if the knife is not used aright, little benefit follows from having well-grown matured wood. Hybrid Perpetuals vary in growth, from the rods of 10 feet, as in Margaret Haywood, to 2 feet in E. Y. Teas and Duchess of Bedford. There are also several very moderate growers that are of very little value after the maiden stage is passed, viz., Cointet, Xavier Olibo, Horace Vernet, and some few others. This wide difference in the strength and length of the shoots made in one season divides the Hybrid Perpetuals naturally into three sections or groups.

Taking the very vigorous growers first. It is one of the greatest mistakes to curtail the long, ripened growths of the previous summer more than can be avoided, as these shoots afford a quantity of blossom of good quality, and it would be of no assistance to the plant to remove or greatly shorten these. I do not purpose saying how many buds should be left upon a shoot, nor at just what length either lateral or vigorous shoots should be, as that would be obviously misleading, because if we look at a few varieties we find such great diversity in the numbers of buds upon the shoots. As a general rule to follow; let laterals be cut back for two-thirds of their length, whether weak or strong, and save as much as may be convenient of the ripened long growths, which invariably flower more evenly throughout their length when pegged down, or secured by some means in a slanting position.

Strong growers that are not of extraordinary vigour afford great diversity, for while those of Ulrich Brunner, and Général Jacqueminot may not make a really strong shoot, they frequently do so, as do also Pride of Waltham, Suzanne M. Rodocanachi, and other smooth-wooded varieties. And in the case of these and others like them, if a strong shoot is made from the base, it will be well to bend it downwards rather than to shorten it or leave it as it is. Most rosarians require a quantity of blooms of good form and substance, and a shapely plant. As soon as the first crop of flowers is secured from these long rods, the cultivator should prune them back and restore balance of the head. The ordinary growth of the shoots of this section of the Rose may be shortened to one-third or one-sixth of their length, according to strength, always bearing in mind that the stronger the growth, the less is the need to prune hard. The direction of the terminal bud, and thinning the centres of the plants as far as may be done without

sacrificing good wood, are matters that are known to most rosarians, and need only to be mentioned.

Other Roses although possessing a robust, strong habit, as Baroness Rothschild and Merveille de Lyon, need much closer pruning, for the plants grow upright and are sturdy, so that unless pruned closely their shoots get so crowded that but little of their beauty is seen. Let the centres of such be thinned out thoroughly, and let all the shortened shoots have the terminal bud point outwards. Tea-scented and Noisette Roses may safely be treated upon much the same lines, and among them is a large number which invariably make a quantity of healthy laterals. The two or three eyes left after a flower has been cut will push out and flower again, or leave valuable wood for the following year. Marie Van Houtte, Anna Olivier, Dr. Grill, G. Nabonnand, Francesca Kruger, and Ernest Metz are half-a-dozen well-known examples. Here I would prune back each sound and well-ripened lateral to within 3 or 4 inches of its base if a promising bud exists there, and thin out the centre severely, and so do away with the risk of having a lot of flowerless shoots.

The weaker growers, such as Perle des Jardins, Madame Cusin, and Sunset should have almost the whole of their really strong and mature wood retained; as should likewise Souvenir d'Elise Vardon, Cleopatra, Comtesse de Nadaillac. I am aware that in this paragraph I may seem somewhat contradicting my opening notes, but I have found it best to leave the majority of sound eyes upon these; as also on plants of Ma Capucine. Quite in contrast to the last are those of such extraordinary growth as Rêve d'Or, William Allen Richardson, Crimson Rambler, and Maréchal Niel. These should be treated according to the methods advised for the extra vigorous hybrid perpetuals. The shoots may be pegged down, or trained on walls and fences. It may be remarked that most of these are grown upon walls having a warm aspect; and Crimson Rambler is the better for being placed in a partially shaded and cool position. This class may also be grown upon low walls and fences if cut back rather hard, and the long rods encouraged after flowering. In the early part of the year, train these in cordon form, or even as edgings to lawns and large flower-borders. Another method is to obtain a few long growths, and after these have flowered, and the laterals are matured, spur them back half way, when, if the wood is fairly ripe, it will flower without the need of maiden rods each year, although it is advisable to preserve a new rod occasionally.

The shoots of the Ayrshire Evergreen and other very rampant climbers may be left at full length, or slightly shortened, if the position demands it, as may the rugosus and Hybrid Sweet Briar. Bank-sian Roses need a little thinning out of the old wood, but the ripe shoots of last year's growth should be left intact, together with much of the new wood upon any part of the plant, especially that arising from the bottom. The weather has been favourable to the tender Roses, and there is promise of an abundant show of flowers.

Mo ses, Provence and Gallica Roses, may be pruned rather hard, but the Persian and Austrian Brians need thinning-out, and last year's long shoot to be left intact.

So far as standards are concerned, we should prune each class upon the same lines, when if long rods are left, they will hang over in a pleasing manner. I have not mentioned the Hybrid Teas, but they may be pruned upon similar lines to the above. Some H. T.'s are more like the H. P.'s than the Teas, and *vice versa*, and let each be pruned according to the class it most nearly resembles. A. P.

SOCIETIES.

LINNEAN SOCIETY OF LONDON.

FEBRUARY 17.—Mr. F. N. WILLIAMS, F.L.S., read a paper on *Arenaria*, one of the larger genera of Caryophyllaceæ, which now includes a considerable number of species. *Aisne* and others, usually included as sections of the genus,

he thought should be regarded as distinct genera; *Aisne* and *Arenaria* being distinguished by the same cardinal character which separates *Lychnis* from *Silene*. The genus under revision includes species (of which 168 are enumerated) distributed chiefly throughout the north temperate zone, though in the New World a few occur in South America. A few species which extend toward the tropics occur at considerable elevations on mountain-ranges, reaching, for instance, 19,000 feet in the Himalayas of W. Tibet. In this revision, for the formation of primary groups, the two associated characters relied on are the number of teeth formed by dehiscence of the ripe capsule, and the structure of the disk. An examination of several series of specimens, especially of those of the better known forms growing *in situ* shows these two characters to be fairly constant, and suitable for the definition of primary groups, although in habit and aspect species of *Aisne* are not readily distinguished from those of *Arenaria*. The author's descriptions are confined to species recognised during the last fifty years (from 1848 to 1897 inclusive), the others being cited in their proper place by name and references.

CHELMSFORD HORTICULTURAL.

FEBRUARY 17.—The adjourned annual meeting of the Chelmsford Horticultural Society was held at the Vestry Hall on Thursday evening, Mr. W. W. DUFFIELD presiding.

Mr. G. T. Weeks, the hon. secretary, presented the financial statement, which showed receipts £219 5s. 8d. (including £104 18s. 6d. and £87 14s. 8d. gate-money, and £57 19s. grants), and an adverse balance of £87 4s. 4d., of which £29 11s. 6d. were outstanding subscriptions. There was a loss of £12 14s. 10d. on the year.

WINCHESTER GARDENERS' ASSOCIATION.

FEBRUARY 22.—The usual monthly meeting was held on the above date, when, by favour of the Hampshire County Council, Mr. GARNER, of Cadlands Park, Fawley, Southampton, gave a very instructive and practical lecture on "Fruit Culture under Glass," which was greatly appreciated by the members present.

The subject is a too lengthy one to be embodied in one necessarily abbreviated lecture, but as full justice was done as the time permitted, and it formed the last of the present series of meetings.

EXETER AND DISTRICT GARDENERS' ASSOCIATION.

FEBRUARY 24.—At the usual fortnightly meeting of the members of the Exeter and District Gardeners' Association, held at the Exeter Guildhall on the above date, Mr. T. H. SLADE, Poltimore Gardens, in the chair, Mr. W. R. Baker, gr. to Lady Duckworth, of Knightleys, Exeter, read a paper on "The Cultivation of the Potato." There was a capital attendance considering the inclemency of the weather. In the course of his remarks, Mr. Baker advocated an occasional change of sets, and the adoption of the more modern varieties, many of the fine Potatoes of twenty or thirty years ago having "run out," so that they could not compare with the best of our present day varieties, as for instance, Early Puritan, Windsor Castle, The Garton, Up-to-Date and Boston Q.Q., Satisfaction, &c. As to growing tubers for exhibition purposes, he said it was an easy matter to obtain large handsome tubers if the following method was followed. Let the sets be of middling size, and lay them in shallow wooden trays in a cool, dry place, with the sprouting end upwards; removing all shoots but the strongest, and permitting no other to remain on the plant after it begins to grow above-ground, for even when the tuber is thus early disbudbed some latent buds will push forth weakly shoots. In earthing-up none of the foliage should be covered with the soil. The best kind of land for Potato culture is a friable well-drained loam, and, if artificial manure be used, kainit was the best. In a sandy light soil he used plenty of cow-stall (oxen) manure; and if the soil was heavy, stable manure and fresh lime. A remedy for the scab of soil which affects Potatoes in some kinds was a liberal application of fresh soot. About thirty dishes of the leading varieties of Potatoes were shown.

The lecturer drew the attention of his hearers to the excellent effects that followed the spraying of the foliage of the Potato with the Bordeaux Mixture in June and August. An instructive discussion followed the reading of the paper.

LANCASTER HORTICULTURAL.

FEBRUARY 26.—The twenty-second annual meeting was held on the above date, Colonel FOSTER (President) in the chair. Although last year's show was most excellent in character, the public support was so scant, that there was a loss on the year of nearly £33, the gate-receipts, which amounted to £128 5s. 9d. in 1888, and averaged £90 for the last eight years, being only £15 last year. A Cycle Trade

Exhibition was tried in conjunction with the last exhibition, and the committee are so discouraged, that they recommend no exhibition be held this year. The Hon. Secretary, Mr. J. Hatch, announced, however, they might have a cottagers' show, as the number of allotments and interest in cottage gardening are increasing, of which late shows offered evidence. Colonel Foster, M.P., was re-elected President.

CHESTER PAXTON.

FEBRUARY 26.—At the usual bi-monthly meeting, held at the Grosvenor Museum on the above date, Mr. A. T. GILLANDERS, High Leigh, delivered a lecture on "Forest Entomology," to the members, who were present in goodly numbers. The lecturer dealt in a comprehensive manner with the life-histories of the gall-mites, saw-flies, beetles, and other insects, often so injurious to forest trees; and gave valuable hints as to the best means of preventing these pests from doing damage. The lecture was copiously illustrated with lantern-slides, at the close of which Mr. Gillanders was accorded a hearty vote of thanks.

ROYAL GARDENERS' ORPHAN FUND.

FEBRUARY 25.—A meeting of the executive committee took place on the above date at the Horticultural Club, when Mr. William Marshall was unanimously elected chairman for the present year. The following special receipts were announced:—Mr. M. Todd, Edinburgh, £30 10s.; Mr. H. J. Jones, Lewisham, box in Chrysanthemum show-house, £14 3s.; Mr. J. Gammie, Chiswick, £5 5s.; Mr. H. Eckford, Wem, £2; Mr. B. Marks, Hardwick, Bury St. Edmunds (box), 10s.; Messrs. Jones & Son, Shrewsbury (box), 9s. 3d.; Mr. J. Hamilton, Byrkley, Burton-on-Trent (box), 8s.; Hook Cottage Garden Society, 6s. 6d.; Mr. J. Pearce, Belmont, Lee, 12s. 5d.

The secretary made a report as to the result of the recent election, and laid upon the table the usual documents, signed by the guardian of the child, in most cases the mother filling that capacity, and properly attested. A sub-committee was appointed to arrange the details of the annual dinner. A cordial vote of thanks was passed to the chairman for presiding.

TREES AND SHRUBS.

PRUNUS AMYGDALUS VAR. PERSICOIDES.

It is curious that so little should be known of the merits of this variety of the common Almond. Rarely, if ever, is it catalogued even by the leading nurserymen. It is, nevertheless, according to my experience, one of the most valuable of all the varieties of the Almond, for it flowers, as a rule, at least two or three weeks in advance of any other variety. It has been partially in flower at Kew since the beginning of February, and quite fully out since about the 10th or 12th, far surpassing either of the forms of *Prunus Davidiana* in beauty. The flowers are, of course, much larger than those of *P. Davidiana* (although not so large as the best forms of the common Almond), and the tints are richer than those of even the variety of David's Peach, known as *rubra*. The name *persicoides* is quite an old one, and is mentioned by Du Hamel in his *Treatise on Trees and Shrubs*, published early in the present century. The variety is worth bringing into notice as a beautiful hardy tree, following close on the popular *Prunus Davidiana* in time of flowering, and thus the second earliest of the great *Prunus* tribe. It is no accidental freak, for at Kew it has shown the same character during the last four or five years to my knowledge. It is planted in quite exposed positions.

NUTTALLIA CERASIFORMIS.

Whilst the flowers of this Californian shrub have no bright colour to recommend them, they appear each spring with such unfailing regularity and profusion, and so much in advance of the great bulk of spring flowering trees and shrubs, that the species deserves a place in every garden. Its flowers are very gracefully borne on short pendent racemes, and the calyx is green, the corolla white. The mode of flowering strongly suggests a *Ribes*, a resemblance borne out also by the habit of the shrub, which forms a wide, dense thicket of erect branches, suckering freely from the base. It is, however, a Rosaceous plant, and is nearly allied to *Prunus* (in some catalogues it is called *Prunus californica*). It is perfectly hardy, and thrives well in any fairly rich, moist soil; but in spite of this, and the fact that it was introduced fifty

years ago, it is a comparatively rare shrub. There is an excellent figure of it in the *Gardeners' Chronicle*, April 18, 1896, p. 489, and several bushes may now be seen laden with bloom in the grounds at Kew.

ERICA LUSITANICA (E. CODONODES).

In the London district, unfortunately, this beautiful Heath is not absolutely hardy. Winters like the one just past do not of course, affect it in the least, but severe ones are apt to cut it back more or less, and when it has to encounter a time like that of the January and February of three years ago, it is killed outright. It is, nevertheless, well worth growing, and especially so, of course, in the milder parts of the country. It comes into flower in February, and keeps in beauty for a couple of months at the least. It is one of the tallest Heaths, and Lindley (*Botanical Register*, t. 1698) describes a specimen at Maresfield in Sussex, as a bush 10 to 12 feet high. The flowers are white, and although small, are remarkably abundant, every one of last year's growths being thickly crowded with the tiny white bells. The flowers have a slightly Vanilla-like odour. The species is a native of Spain and Portugal, and ought to find a place in all gardens where peat-loving shrubs thrive, and especially where the earliest-flowering ones are desired. *W. J. B.*



[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named: and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.					10ths Inch.	Ins.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 2, 1898.
	Above (+) or below (—) the Mean for the week ending February 26.	Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since January 2, 1898.	Below 42°, difference from Mean since January 2, 1898.				
0	3 -	0	46	+ 41	- 140	0	50	13.4	27
1	4 -	0	55	+ 56	- 156	1	32	3.2	37
2	3 -	1	46	+ 100	- 161	1	25	1.7	42
3	3 -	6	50	+ 49	- 166	2	24	1.7	53
4	4 -	3	53	+ 59	- 180	2	24	1.8	45
5	3 -	6	49	+ 82	- 198	2	22	2.2	34
6	3 -	2	44	+ 82	- 151	2	40	7.6	43
7	4 -	0	39	+ 88	- 183	2	36	5.8	55
8	5 -	5	42	+ 87	- 139	1	32	4.2	43
9	3 -	6	40	+ 86	- 127	2	39	5.8	48
10	4 -	9	38	+ 106	- 109	2	30	5.3	47
*	2 -	23	13	+ 122	- 78	4	35	2.7	35

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending February 26, is furnished from the Meteorological Office:—

"The weather during this period was generally cold and changeable. Showers of cold rain, sleet, and hail were very prevalent during the earlier half of the week, and large quantities of sleet and snow fell over our southern and south-western counties, accompanied in some places by thunder and lightning. By Friday, however, the conditions had changed, and milder weather became prevalent, with rather heavy rain in the west and north, and slighter amount elsewhere.

"The temperature was below the mean, the deficit ranging from 2° in the 'Channel Islands' to 5° in 'England, W.' The highest of the maxima were recorded towards the end of the period, and ranged from 51° in some parts of the southern and south-western districts, to 47° in 'Scotland, N. and W.' The lowest of the minima varied greatly in different parts of the kingdom. In 'Scotland, E.' (at Braemar, on the 24th), the sheltered thermometer fell to 3°, F., in 'England, N.W.' (at Manchester, on the 21st), to 17°, and in 'England, S.W.' and 'Scotland, W.' (at Culmington and Glenlee, on the 24th), to 18°. In the other parts of the kingdom they varied from 19° in 'England, E.' and the 'Midland Counties,' to 25° in 'Ireland, N.,' and to 35° in the 'Channel Islands.'

"The rainfall somewhat exceeded the mean over 'Scotland, E.,' 'England, S.,' 'S.W.,' and the 'Channel Islands,' and 'Ireland,' and just equalled it in 'Scotland, N.' In all other districts the fall was less than the normal, especially in 'England, E.,' and the 'Midland Counties.'

"The bright sunshine was much above the mean generally. The percentage of the possible duration ranged from 55 in 'England, N.W.' and 53 in 'England, E.,' to 34 in 'England, S.,' and to 27 in 'Scotland, N.'"

CULTURAL MEMORANDA.

MARANTAS.

ALL the species delight, during the growing season, in a high temperature and an abundance of atmospheric moisture. They also require shade from hot sunshine, or the leaves are liable to become rusty in appearance. Placed between larger growing plants in the stove they succeed well enough, and most of the species may be readily increased by division of the crowns in early spring.

The beginning of March is the best time to repeat the plants, at the same time dividing those that require it. If large specimen plants are not desired for any purpose, it is best to divide the crowns annually, by which system the individual leaves as they advance into growth are provided with sufficient space for development. This is a decided advantage in the case of dwarf-growing varieties as *M. (Calathea) Massangensis*. A compost of equal parts fibrous mellow-loam, peat, and decayed cow-manure, broken roughly with the hand, adding a liberal quantity of silver-sand, and a few nodules of charcoal and potsherds, I have found most suitable, and the whole should be well incorporated. The pots used should be absolutely clean, and the drainage perfect in every respect, for when growing freely, the plants must be given copious supplies of water. Syringe the plants thoroughly overhead with rain-water twice a day in bright weather, and keep the foliage clean by occasionally sponging it with soapy-water. When the plants have partially filled the pots with roots, they may be given weekly applications of liquid-manure, which, however, should not be permitted to touch the foliage. From the commencement of October until March, a dryer atmosphere will be necessary, and syringing may be discontinued. During the same period, fewer root-waterings will be needed, but at no time should the soil be allowed to become quite dry. The most distinct and beautiful species and varieties are *M. Massangensis*, *M. Makoyana*, *M. Veitchii*, *M. resea picta*, *M. illustris*, *M. Lindenii*, *M. Wallisii*, *M. medio-picta*, *M. zebrina*, and *M. Warszewiczii*. *H. T. M., Stoneleigh.*

NOTICES TO CORRESPONDENTS.

AZALEA SHOOTS DISFIGURED: *E. Hill.* Imported plants suffer sometimes if they have been taken from the open ground, owing to the tips of the roots being injured in the process, and the plants need a period of growth for complete recovery. We are unable to say what is the cause in your case, but it is something in the nature of a check.

CHRYSANTHEMUM FUNGUS: *W. H. P.* The *Chrysanthemum* cutting is affected with rust, *Uredo Hieracii*, in its young state. Remove all leaves that show fungus, in order to check its spread. Spraying with a fungicide, or with dilute Condy's Fluid, might assist. *M. C. C.*

CUCUMBER BINE: *C. W.* Some error in management, but we are unable to indicate anything nearer.

EMIGRATION: *S. E.* As good patriots, we ought to recommend the Cape of Good Hope, but really we should greatly prefer California, which, with the finest climate in the world, a plentiful rainfall, and

good soil, is a paradise for the fruit-farmer, Vine-grower, perfume-flower cultivator, rancher, &c. With your acquirements, horticultural and other, the road to success in either colony should not be difficult.

FUMIGATOR FOR A VINERY: *J. G.* The XL All may be recommended, not however using it unless the berries are larger than Marrowfat Peas, and not using it of greater strength than the maker recommends.

GLADIOLUS BULBS DISEASED: *G. H. W.* The disease found upon your bulbs was figured and described in *Gardeners' Chronicle*, September 30, 1876. As only a few of a large quantity of corns are so attacked, we should advise you to burn them; but if you wish to retain them, then, before they are planted, soak them in a solution of sulphide of potassium, 1 oz. to the gallon.

GOOSEBERRIES DYING OFF: *M. S. & Sons.* In the absence of any visible cause, we must suppose it must be due to some injurious application at the root.

INDIAN ORCHIDS: *E. M. Shakespear.* If you will send the plants, we will do our best to name them.

INSECTS: *J. H. W.* The name of the *Chrysanthemum*-leaf miner is *Phytomyza nigricornis*. The perfect insect, an attacked leaf, and a figure of the Ichneumon-fly, which is sometimes parasitic upon the *Phytomyza*, were given in the *Gardeners' Chronicle*, May 12, 1883, p. 593. Your specimens are very good ones, and have been neatly mounted.

NAME OF FRUIT: *F. Lee.* Sturmer Pippin.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—*T. P., Dickson.*

1, *Asplenium biferme*; 2, *Didymochlaena truncatula* (lunulata); 3, *Polypodium inaequale*; 4, *Aspidium* (Lastrea) *serra*; 5, *Asplenium bulbiferum*; 6, *Litobrochia vespertilionis*.—*Enquirer.* 1, *Erythronium Deus-canis*; 2, *Anemone Hepatica*, double form; 3, *Anchusa officinalis*; 4, *Pteris serrulata*.—*T. W. C.* 1, *Asplenium bulbiferum*; 2, *Cyrtomium falcatum*; 3, *Acalypha musaica*; 4, *Acalypha marginata*; 5, *Dracena intermedia*.—*Wm. W.* *Rhododendron præcox*, *Odontoglossum triumphans*, and *Dendrobium primulinum*.—*W. W.* *Medicago scutellata*, *Daphne odora*.—*E. M.* *Bilbergia nutans*.—*J. P., Chippenham.* 1, *Dendrobium Devonianum*; 2, *Cyrtanthus sanguineus*; 3, *Cyrtanthus Mackenii*.—*T. A.* *Crocus Tommasinianus*, not *banaticus*.—*E. R.* *Lonicera Standishi*.—*G. E.* *Narcissus Pseudo-Narcissus* var. *major*.—*H. H.* *Pittospermum undulatum*, *Epidendrum cochleatum* of gardens.

PEACH ROOTS: *A. Young.* Roots dead, and covered with fungus; but it is doubtful if the fungus is the cause or the consequence of their death.

PELARGONIUMS GOING BLIND: *C. B. W.* Over-fumigation, or too much or too strong manure or other check to growth.

REMOVAL OF SHRUBS AND HERBACEOUS PERENNIALS: *W. E. J.* Unless you are a nurseryman, all trees and shrubs and Roses would be regarded as coming under the latter category, cannot be removed without first getting the sanction of the landlord. Herbaceous plants may be removed by the tenant, but he may not remove the soil with them.

TERM TO INDICATE A PLANT WHOSE FLOWERS APPEAR BEFORE ITS LEAVES: *R. G. G.* *Præcox flores præcoces*.

TURF-CUTTING AND TURF-LAYING: *T. T.* It is a fair piece of work for one man and a boy to "race" out and raise 1000 one square foot turves in a day of ten hours, so that the price for the same if done by the day totals out, say, one man 3s. 6d., one boy, 1s. 6d.=5s. Turf-laying takes rather longer time, but much will depend on the nature of the turf, the land, and experience of the persons carrying out the job, and the nearness of the heaps of turf to the land to be laid down with it. Beating, rolling, &c., would still further add to the cost.

COMMUNICATIONS RECEIVED.—*W. J. B.*—Canon E.—H. H. D'O.—Mrs. A.—W. B. H., Cork.—G. M. W., Poona.—K. Denter, Kietmansdrorp.—J. C. B.—W. E. G.—G. P.—W. N. B.—H. W. H.—T. Grant.—D. T. F.—U. D.—W. H. B.—L. S.—C. P. B., Frankfurt.—H. R.—W. B. H.—J. C. T.—H. W. W.—G. M. W.—W. N. B.—R. C.—H. T. C.

PHOTOGRAPHS, SPECIMENS, ETC., RECEIVED.—*Dr. W.*—*G. P.*—*Dr. Dummer*.—*W. & S.*

DIED.—On the 26th ult., at Offington, Worthing, of influenza, THOMAS GAISFORD, J.P., D.L., in his 82nd year.

(For Markets see p. xiii.)



THE

Gardeners' Chronicle.

SATURDAY, MARCH 12, 1898.

SEEDLING APPLES.

IT is remarkable that in an age when hybridising and cross-breeding amongst plants have been so closely and successfully followed up by observant horticulturists, very little systematic work has been attempted with Apples or Pears. It has been said by such veterans as Mr. John Laing that they regretted that they had not given attention to the improvements of our standard fruits in the earlier days, so that they might have had a chance of seeing the result of their labours. But there are many plants which take far longer than Apples or Pears before the operator can prove whether his efforts have yielded substantial improvements. It is quite possible to obtain fruit within five years of the time of sowing, and in some cases a less time than this will elapse before fruit is produced, though it takes longer to prove a variety thoroughly, especially those which do not appear satisfactory at first, as they occasionally improve greatly as the plants gain strength. Seedling Apples will make a growth of from 1 foot to 2½ feet in a season, and if this be well matured by exposure to the sun it can be utilised as scions for grafting on Paradise stocks the following March. Under favourable circumstances, strong scions will produce a few fruits the second season from grafting, this being the fourth year from the seed, and I have even known them do so in the second year of the scion, but they are rarely strong enough to stand the strain, becoming stunted and barren for several seasons afterwards.

Very few Apples of proved merit are known to have resulted from crossing two varieties—in fact, it is doubtful if a dozen could be named of which the parentage has been known to the raiser and made public. Thomas Andrew Knight, the celebrated president of the Royal Horticultural Society, early in the present century, was most systematic in his work, and he has left the records of most of his seedlings. The best known of these are the following: Bringewood Pippin, from Golden Pippin crossed with Golden Harvey; Downton Pippin, from the Isle of Wight Pippin crossed with Golden Pippin; and the Red and Yellow Ingestre from Orange Pippin crossed with Golden Pippin. Downton Pippin was at one time a fairly popular Apple, and its name was frequently applied to other and less useful sorts in the shops, just as Ribston Pippin is now often employed to designate very different Apples. A west of London fruiterer in a large business at one time made a practice of giving the name Downton Pippin to every small Apple he was uncertain about. It is now rarely seen in gardens, orchards, or nurseries, though it is one of the few Apples that is useful for dessert and cider too. The Red and Yellow Ingestre are

most interesting varieties from the fact that they originated from two seeds taken from the same cell in the fruit which resulted from the cross-fertilisation recorded. The "Red" variety is not so generally known as the "Yellow," which is a valued occupant of numberless gardens, but the former is still included in the catalogues of a few nurserymen, especially in the west of England.

A well-known Apple of excellent quality, Sturmer Pippin, was raised by Mr. Dillistone, of Sturmer, near Haverill in Suffolk, and is recorded as the result of crossing Ribston Pippin with Nonpareil; and as a late dessert variety, it is highly valued by many growers at the present time. Old Middlemas I have never seen, and I am not sure if it is in cultivation now, but it has been described by Dr. Hogg as having originated in Sussex from a cross between Old Nonpareil and Scarlet Nonpareil, being notable as a good dessert Apple, flowering very late and bearing freely. Coming to later productions, we have Welford Park Nonsuch, one of Mr. Ross's productions which is said to have been obtained from Golden Harvey crossed with Lamb Abbey Pearmain, but the latter is only a probable parent from its proximity, as the cross was not made artificially. A still more recent example of a cross-bred Apple is afforded by Allington Pippin, which is thought to be from Cox's Orange Pippin and King of the Pippins, but I am not aware that there is any definite information on the point. It is possible that it may be one of the late Mr. Laxton's seedlings, if so, his sons should be able to give some information about the variety.

Amongst the more numerous varieties of which only the seed-parent is known, some of the best Apples that have also yielded seedlings of sterling merit are the following: Devonshire Quarrenden has given us Worcester Pearmain, Golden Noble has produced Waltham Abbey Seedling; from Newtown Pippin we have Lamb Abbey Pearmain and Ord's Apple, both being recorded as from seeds in imported fruits of the parent; Cornish Gilliflower has yielded John Gidley Pearmain, Golden Pippin is the seed-parent of Court of Wick; while Ribston Pippin is the reputed parent of Cox's Orange Pippin, one of the best Apples in cultivation at the present time, and generally free from the defects of Ribston.

As regards the bulk of Apples in cultivation, some valuable, and many comparatively worthless, all are practically chance seedlings, the seed-parents of which are not even recorded. Taking as an example the celebrated variety first named, i.e., Ribston Pippin, one of the oldest Apples known in England, it is recorded concerning it that "pips were brought from Rouen in 1688 and sown at Ribston House, Knaresborough," and from one of these it is supposed the Apple originated; but even this is not a certainty, though the place of origin is beyond dispute. Another equally noted variety, though with a shorter history, Blenheim Orange Pippin, which was raised at Woodstock in Oxfordshire, probably towards the close of the eighteenth century, is of unknown parentage, nor have we any definite record that any variety sufficiently like it to be of the same probable origin has ever been raised from an intentional cross. It is the opinion of some who have given attention to the matter in the district, that many seedlings were subsequently raised from the original tree, and that to these we owe the varied form of Blenheim seen in gardens or orchards. If this could

be substantiated it would be a highly interesting fact, as indicating the possibility of a well-fixed variety perpetuating its characters in seedlings; unfortunately, we have no evidence in the case of Blenheim Orange that this has since been accomplished, nor is it the case with the Ribston, for the only result known from this Apple i.e., Cox's Orange Pippin, is distinct from its parent in nearly all its characters except its high quality. I have raised scores of seedlings from both these Apples, and have never succeeded in procuring any approach to a reproduction of the parent qualities. Another very distinct Apple, the Devonshire Quarrenden, has been cultivated in this country for over 200 years, yet nothing whatever is known of its origin, nor am I aware that any seedlings have ever been raised partaking of its characters in a notable degree. It is true we now have the "Winter Quarrenden," but though this was first shown as Stubbs' Seedling, it is not stated that it was a seedling from Devonshire Quarrenden.

Although the flowers of Apples are, as regards the majority of varieties, particularly adapted for cross-fertilisation, owing to the numerous stamens not all being mature at the same time, and to the position of the respective organs, and while this is undoubtedly effected in nearly every case, yet so great is the disturbance due apparently to long cultivation that the variability of the seedlings is remarkable. It is surprising, too, how rapid is the retrogression, for it is not uncommon in one batch of seedlings raised from seed yielded by the fruit of one tree (say Blenheim Orange, for instance) to have several forms that are but slightly removed from the Crab type in size and quality of fruit. According to my observations, a great majority of seedlings from self-fertilised fruits are absolutely worthless, and it may be taken generally that at least ninety per cent. are inferior to the parent. Even with the most careful and systematic crossing, the percentage of seedlings showing valuable characters is small, but this is the only method which should be pursued now by those desirous of improving our fruits. It is true that as regards Apples, the varieties are so numerous that there does not appear to be much room for additions, yet in certain directions useful work could yet be done. For example, late-keeping dessert Apples of high quality, which combine vigour of habit with free-bearing properties and hardiness, will always be in demand because they are never too numerous. Dessert, or culinary Apples, that mature their fruits early in the season, require improvement in their keeping qualities, and a really good early Apple that could be kept without serious deterioration for two or three months would be an acquisition. Then, in the direction of strengthening the flowers of Apples, and increasing their power of resisting frost, there is a great field open for the investigator, and one that should well pay for exploring. It is well known that the flowers of various Apples differ materially in size and substance, time of expansion, hardiness, and in what may be termed staminate or pistillate vitality, fitting them for regular fertilisation, yet we have scarcely any systematic records to refer to, and few methodical attempts have been made to utilise these characters in cross-breeding.

The size of the flowers, i.e., the relative development of the petals, is an important consideration from a protective point of view, as I have found that in all their stages up to the period of full expansion, the large flowers more

frequently escape injury by frost and wind than the smaller ones, which seems to be chiefly due to the fact that the essential organs are more sheltered. It has been thought that the extra development of the flowers in certain varieties is sometimes attended by a diminished vitality in the stamens or pistils. More than thirty years ago it was recorded in the *Gard. Chron.*, that "many of the varieties of Strawberry in the United States consist of three forms, namely females which produce a heavy crop of fruit, of hermaphrodites, which seldom produce other than a very scanty crop of inferior and imperfect berries, and of males which produce none. The males bear large, the hermaphrodite mid-sized, and the females small flowers. The latter produce few runners, whilst the two other forms produce many; we may therefore infer that much more vital force is expended in the production of ovules and fruit than in the production of "pollen." This has been quoted and commented upon by Mr. Charles Darwin and Professor George Henslow, and is a very interesting observation, but amongst the Apples there appears to be an evident advantage in the possession of large flowers. For example, six large-flowered varieties of Apples, Stirling Castle, Duchess of Oldenburg, Lord Suffield, Devonshire Quarrenden, Warner's King, and Cox's Orange, all set their fruit freely and abundantly, especially the three first-named; and in the case of Stirling Castle I have repeatedly had crops of fruit from this when nearly all others have failed. It is true there are some small-flowered varieties which set freely and regularly, of which Yellow Ingestre may be taken as an instance, and Worcester Pearmain also has not large flowers; but as regards the varieties generally, I believe that those with large flowers have a point in their favour, and it is certainly a matter worthy of attention in cross-breeding.

As to the time of flowering, though we have a great range amongst the varieties in cultivation, extending over quite three weeks where a large collection is grown under similar conditions, so much depends upon the season and the uncertain variations in the weather, that the early flowerers, like Duchess of Oldenburg, sometimes escape as freely as those that flower late. Court Pendu Plat is commonly called "the wise Apple," because it is one of the last to expand its flowers, thus presumably escaping the frosts which, during May, are so liable to do mischief; yet in some parts of England I have known this Apple flower about the third week in May, when it was year after year cut by frosts that occurred at that time with troublesome regularity. Lord Suffield, too, is a fairly early flowerer, yet it seldom fails to set a good crop; while Bess Pool, which is almost as late as Court Pendu Plat, is a very uncertain bearer. In consequence, I consider it is of greater importance to pay attention to the size of the flowers in cross-fertilisation for the improvement of the Apple, but in conjunction with this, thickness or substance of petals, and vigour of stamens and pistils must be secured.

Pomona.

NEW OR NOTEWORTHY PLANTS.

ODONTOGLOSSUM EPIDENDROIDES, H. B. Kth.

It may seem more than curious that this, the first discovered species of *Odontoglossum*, upon which the genus was founded by Kunth, should not have been found again, in spite of more than a hundred species of the same genus having been discovered

and introduced into cultivation since it was discovered by A. v. Humboldt and Aimé Bonpland in the warmer region near the ancient town of Yaen de Bracameres, in north-eastern Peru, in August, 1802. The description given by Kunth in the *Nov. Gen. et Spec. Plant.*, i. 351, is fairly correct, but poor and insufficient; and the plate, obviously prepared from dried specimens in the same work, does not convey a proper idea as to the real dimensions of the natural plant. These imperfections of description and illustration may have been the causes which led Lindley to confuse this species with an entirely different one, and thus stigmatize one of the finest members of the genus with a certificate of "worthless." Reichenbach has corrected Lindley's error, naming his *O. epidendroides*.

the peduncle is not "ultra pedalis," but over 4 feet high; 4, the petals are of a sigmoid form; 5, the lip is not white, but shining yellow, with a large dark carmine-red blotch in front. Yet a careful study of the very characteristic column, with its peculiar auricles, the unguis of the lip, and its attachment to the column, the arrangement of the crest of the lip, &c., indicate sufficiently that it belongs to the Humboldtian *Odontoglossum epidendroides*. All that can be said about it is, that the diagnosis must be modified, and that the variety I discovered in a different locality is far superior to the species originally described:—

The pseudo-bulbs are 10 to 12 cm. long, 4 to 5 cm. broad, oblong, elliptic, or lanceolate, strongly compressed, two-edged, and plainly corrugate; the leaves 25 to 30 cm. long,



FIG. 58.—*ASPARAGUS PLUMOSUS*. (SEE P. 147.)

droides *O. Lindleyanum*, and given an exhaustive description of the original so far as the few scraps of herbarial material in the Berlin Herbarium would permit. This was all that Reichenbach and all others knew of this Orchid until a few years before the former's death, when fresh material, collected by myself, was sent to him.

It is now over eighteen years ago that I made my first acquaintance with this plant in its natural habitat. For a long time I have looked upon my plant with great scepticism; it combines a number of discrepancies in its characters, which others might consider more than sufficient to establish a new species with. These digressions are:—1, the locality of my plant is over 300 miles distant from that of the Humboldtian; 2, the description of the bulb by Reichenbach does not correspond to my plant; 3,

3-5 4 cm. broad, linear-ensiform, blunt pointed, flat and subcoriaceous; scape slender, 0.80 to 1.3 metres high, bearing at the top a loose, many-branched, flexuose panicle or raceme; bracts very small triangular acute; flowers wide open, 9 to 10 cm. across the petals, of a most brilliant yellow colour, and spotted with three to five large, but different sized dark carmine blotches, the unguis of the lip and column white; sepals cuneate, oblong-lanceolate cuspidate, 4 to 4.5 cm. wide, the dorsal one sub-cymbiform; petals broader, cuneate, oblong-lanceolate, sub-sigmoid, cuspidate, reflexed, the upper part of the margin irregularly denticulate; unguis of the lip narrow, linear, erect, with a keel-like border on either side, and for about 4 mm. of its length connected with the column; blade reflexed, 3 to 3.5 cm. long, 1.2 to 1.5 cm. wide, oblong sub-pandurate, abruptly cuspidate, the margins finely crenulate or denticulate. The disk consists of two prominent, at their points slightly ascending horns, with a short abortive one between them, and four to five short sharp teeth on either side; column 2 to 2.2 cm. long, canalliculate, the upper half strongly incurved, with a broad, roundish, sometimes bilobed finely serrulate auricle on either side of the stigma.

From a floral point of view, *O. epidendroides* is one of the finest, and deserves a foremost place in any collection of Orchids. The flowers appear in great number, up to fifty and more, on a simple branched spike; they are of an elegant shape, great

a place in the temperate-house, and treatment similar to that afforded *Odontoglossum vexillarium*.

Though this plant was re-detected now eighteen years ago, it has not been introduced into cultivation up to this time. The locality in which it grows can

the traveller is compelled to camp out. On my first visit no live plants were collected, the herbarium specimens were all that could be got; and for a second expedition I have not been able to collect the necessary courage. *F. C. Lehmann, Popayan, January, 1898.*

THE CULTIVATED SPECIES OF ASPARAGUS.

(Continued from p. 124.)

A. lucidus.—An old garden plant, often called *A. falcatus*, which it resembles. It requires tropical treatment, and is an elegant climber for clothing pillars, &c., for which purpose it is grown in the Begonia-house at Kew. Rootstock a cluster of fleshy oblong tubers $1\frac{1}{2}$ inch long. The stems are thin, flexuose, with small spines, 4 to 6 feet long, branched freely, the branches clothed with narrow flattened falcate leaves from 1 to 2 inches long, arranged in fascicles of from two to six. They usually turn yellow in winter and drop off. Flowers axillary, small, white, succeeded by berries $\frac{1}{4}$ inch in diameter, which are pink or white when ripe, and contain one seed. Dr. Henry says it climbs over trees and shrubs in the Corea, and is clothed with white berries. It is a native of China and Japan.

A. medeoloides.—Better known as *Myrsiphyllum asparagoides*, under which name it was figured in the *Botanical Magazine* in 1866 (t. 5584). It is said to have been in cultivation before 1779. A few years ago it came into prominence as a decorative plant, and market growers supplied it in large quantities under the name of *Smilax*. It is still largely grown for its long pliant stems and bright green leaves, which are useful for twisting round the stems of flower-stands, &c. The rootstock is a cluster of fusiform fleshy tubers, 4 to 6 inches long, and $\frac{3}{4}$ inch in diameter. The stems are from 6 to 9 feet long, thin and pliant, spineless, the branches short, zig-zag, and clothed with ovate thin bright green leaves 1 inch long. Flowers small, axillary, green. Fruit globose, pea-like, three-seeded. There are several varieties, distinguished by the size and form of their leaves. Common in South Africa.

A. officinalis.—The common *Asparagus* deserves to be included among plants grown for decorative effect, a few clumps of it in a border, or even a bed of it standing free on a lawn, being decidedly ornamental. In the rock-garden at Kew there is a mass of it on the end of a wall-like arrangement of stones overlooking the bog-garden; and here the effect of the long, elegant stems in summer, and particularly in autumn, when they are clothed with bright red berries, is most pleasing. The plant is, of course, easily obtained, either from roots or seeds. It is wild in Britain, and also in various parts of Europe, N. Africa, and Siberia.

A. plumosus (fig. 58, p. 146).—This species was first described by Mr. Baker in the *Journal of the Linnean Society*, in 1875, from herbarium specimens collected by Cooper and others in South Africa. It is probable that Cooper introduced it into Mr. Wilson Sander's garden, for there was a large plant of it in the Succulent-house at Kew, in 1879, under the name of *A. consanguineus*. In the *Gardeners' Chronicle*, for 1878, it is noted as a new garden plant, which had been introduced from Natal by Messrs. J. Veitch & Sons. Mr. Bull offered it as a new plant in 1879 under the name of *A. consanguineus*. It is now one of the commonest of indoor plants, being of exceptionally elegant habit and easy to cultivate, whilst its fronds are useful in many ways. It has terete green spinous-climbing stems, which sometimes attain a height of 10 feet or more, the branches spreading horizontally, and branching again in such a manner as to form a flat frond-like arrangement, the leaves being very numerous, in clusters of about a dozen, bright green, and $\frac{1}{2}$ inch long. Flowers usually solitary, white, star-like, succeeded by globose black berries containing one seed. A native of South Africa, where it climbs over bushes, &c., in moist situations. There are several named varieties of this, most of which have originated in gardens. The most distinct is



FIG. 59.—*ASPARAGUS RACEMOSUS TETRAGONUS*.

Showing:—1, Young stem; 2, mature stem, with spines; 3, leaf-whorl; 4, leafy branch. (See p. 148.)

substance, and remarkable in colour, and as if varnished. It is a native of Peru and Ecuador, epiphytal on trees in dense, damp woods on the eastern declivities of the Andes, at an elevation of 800 to 1200 metres above the sea-level, and in its natural habitat the flowers appear in the months of December and January. *O. epidendroides* will require

only be reached by travelling on foot for many days—and what travelling! The indescribable path leading to it, through luxuriant primeval forests, and across foaming ravines and rivers, is one of the worst of the many dangerous journeys I have undertaken in the Andes. There are besides no human beings living in the vicinity, and during the entire journey

A. plumosus nanus, which is badly named, the plant being at least as long in stem, and robust as the type. It is distinguished by the fulness and flatness of its fronds, and by its refusal to multiply by means of cuttings, division of the plant or seeds being the only method that answer for it. I believe this plant is a seedling-sport from the old original *plumosus* grown at Kew. A figure of it was published in the *Gardeners' Chronicle* in 1881, and is here reproduced. It obtained a First-class Certificate in 1881. Other varieties, more or less distinct, are tenuissimus, with longer, less numerous leaves than the type, also called *albanense*; *declinatus*, raised in the nursery of Messrs. Backhouse & Sons, of York, and differing in the drooping arrangement of its branches; *cristatus*, with branches less flattened, and each branch terminated with a tassel-like cluster of branchlets and leaves; *comorensis* does not seem to be anything more than the type. With the exception of the variety *nanus*, all these forms are easily propagated from cuttings formed of the branchlets.

A. racemosus.—Messrs. Veitch & Sons introduced this species from Mauritius, and included it among their new plants of 1886. "The stems are very slender, and furnished with still more slender branchlets and spray, clothed with linear cladodes or false leaves of bright glossy green. It is a most desirable plant for the conservatory and warm-greenhouse as a pillar and trellis-climber." I do not know the type, which is spread throughout the tropics of Africa and Asia; but the Cape form of it is represented at Kew under the name of variety *tetragonus* (see fig. 59). This is a vigorous grower, with woody stems 9 feet long, prickly at the base, fawn-coloured, freely branched above, each branch having at its base a sharp spine $\frac{3}{4}$ inch long. The leaves are of a grey-green hue, four angled, $\frac{1}{4}$ inch long. Flowers in racemes 2 inches long, whitish, very fragrant. Berry, red, globose, pulpy, one-seeded. An excellent climber for rafters, pillars, &c., growing vigorously under ordinary treatment. Its root-system is a dense mass of tubers.

A. retrofractus.—Although sent out as a new plant, under the name of *A. retrofractus arboreus*, in 1890, this species was cultivated by Philip Miller in 1759, and I find it was in the Kew collection in 1872. It is now a fairly popular garden plant, on account of its vigorous habit, bright green colour, and elegant larch-like leaves. It is equally useful for training up pillars, on the naked stems of Palms, &c., in greenhouses, or for suspended baskets. The stems are 6 feet or more long, woody, slender, gray, freely branched, zig-zag, with small prickles at the base of the branches, which are very slender and wiry, and clothed with crowded clusters of hair-like bright green leaves, an inch long. Flowers axillary, in umbels, small, white. Berry small, globose, one-seeded. A native of South Africa. *W. Watson.*

(To be continued.)

ORCHID NOTES AND GLEANINGS.

CATLEYA TRIANÆI VARIETIES.

For some years *Cattleya Trianæi* was a first favourite; then came some large importations of a very bad type of it, and its hold on the amateur was considerably shaken. Recent importations of fine types seem to have thoroughly re-established it in favour, and for the last year or two its varieties have contributed some of our most beautiful winter flowers.

The variation in the type is so great, that in every garden where several are in flower one or two will strike the grower as being extraordinary, and an opinion will be asked. Many extremely beautiful varieties have been sent during the last fortnight, many of them so dissimilar that they afford a very good object-lesson on the difficulties which the earlier workers in the field must have experienced in determining which were species and which varieties.

F. W. Moore, Esq., of the Royal Botanic Gardens, Glasnevin, Dublin, sends *Cattleya Trianæi*, Glasnevin variety, a very showy flower, with sepals and petals

white, slightly tinged with lavender, which delicate hue also runs round the rich deep purple of the front of the lip. Mr. G. W. Marsh, gr. to T. P. W. Butt, Esq., Arle Court, Cheltenham, sends *C. Trianæi*, Arle Court variety, a grand flower of the *C. T. Eboracensis* class, with light rose-coloured sepals and petals, the latter bearing a distinct purple line at the tips. The lip is intense crimson-purple, the zone orange.

Of quite a different class, though equally beautiful, are three sent by Mr. Fred. J. Thorne, gr. to Major Joicey, of Sunnydale Park. The handsomest of these has a gorgeously-coloured flower, still further embellished by a half-inch wide fringed lavender-coloured margin; another is a splendid flower, of an uniform soft Peach-blossom hue, like a *Cattleya Schrodæ*; the third is peculiar by its bright majenta-crimson plain-edged lip. H. Brittan Evans, Esq., of Clifton, sends two, the one a clear white, with a very slight tinge of pink; and the other a perfectly-shaped flower of the *C. T. delicata* class.

Several grand flowers are sent by Joseph Broome, Esq., of Llandudno, who calls attention to the fact that the two remarked on last year, the one as having the general colours of *C. Mendeli*, and the other the appearance of a brightly-coloured autumn *labiata*, are even finer than last year.

ORCHIDS AT MR. H. A. TRACY'S, TWICKENHAM.

Most of our amateurs who have commenced collecting Orchids during the last few years, have found the little establishment in the Amaryllid Park Road very useful in enabling them to obtain small sound plants of the chief showy species at moderate prices, and many whose collections have been formed, still frequent the place and seldom go away without buying. There are invariably numbers of good plants in flower, but, as the proprietor remarks, most of the plants are sold either in bud, or as soon as the flowers open, and hence there is seldom a very great show, nothing being retained for that special purpose. At the present time in the largest intermediate-house the varieties of *Cattleya Trianæi* contribute the most of the display, and of these there are some very handsome forms exhibiting great variety in colour. There are likewise varieties of *Lycaste Skinneri*, and one named "*Marmorata*" has a very rich rose-colour, the lip marbled with white; also *Dendrobium nobile* and other *Dendrobiums*, some fine plants of *Phalænopsis Schilleriana*, with stout branched spikes and other popular Orchids.

In the *Cypripedium*-house there are in flower *C. × Harrisianum superbum*, and *C. × H. nigrum*, still two of the finest dark-coloured hybrids; and a very handsome *C. × Swinburnei*, some *C. exul*, *C. Spicerianum*, *C. Lathamianum*, *C. villosum*, *C. Boxalli*, *C. × Leeatum* and others, and in bud several strong *C. Druryi*, a peculiar variety of *C. callosum* and other species.

In the other houses some of the varieties of *Cologyne cristata* are in bloom; a number of *Odontoglossum Rossii majus*, a good specimen of *Ada aurantiaca*, *Odontoglossum Roezlii*, and *O. R. album*, *Sophranitis grandiflora*, *Oncidium*, &c.

The forcing of Lilies and Daffodils for cut-flowers, is extensively carried out, and a fine display made by the Daffodils at the present time.

CYMBIDIUM TRACYANUM.

This handsome species, which first appeared as a single plant with Mr. H. A. Tracy in 1890, and was illustrated in the *Gardeners' Chronicle*, Jan. 31, 1891, p. 137, appears never to have been imported in bulk, and the addition to its number in gardens is due to the appearance of one now and then among importations. A fine flower of an arrival of that kind is sent by Mr. James Keeling, nurseryman, Mount View, Glossop Road, Sheffield. The markings of dark purplish chocolate on the greenish-yellow of the sepals and petals seems slightly darker than in the original. The cream-white labellum with the numerous hair-like processes, and red-brown spots, and the peculiar fragrance of the flower are as in the type.

A LITTLE CORNISH GARDEN.

(Continued from p. 93.)

FEBRUARY. — The recent hurricanes seriously marred my little garden's February aspect, and I feel bound to acknowledge that the Cornish hedges have scored heavily by the side of my poor efforts. The furze or gorse has for a month past been blazing in golden glory, and has come out of the windy ordeal scatheless. In his latest book, Mark Twain writes of a part of Australia that "the gorse and the broom were a fine accent in the landscape. Here and there they burst out in sudden conflagrations of vivid yellow against a background of sober or sombre colour, with a so startling effect as to make a body catch his breath with the happy surprise of it."

However, in spite of the elements, I have had a brilliant show of Crocuses, a variety of beautiful Snowdrops, and several other flowers, golden yellow, gaudy blue, and other colours too, of interest and beauty. My Primroses, also, are daily becoming more and more a mass of flowers, and I could on February 2 have picked many hundreds from a narrow border but a few yards long. Although the yellow Primrose appeals to me as the most beautiful of all, yet I have several enormous and very attractive blooms of other colours; but I can see little beauty in the pale washed-out purplish flowers which are produced in such large proportions by an average packet of Primrose-seed. Still, as an old verse (presumably *Campion's*) has it:—

"Give beauty all her right!
She's not to one form tied;
Each shape yields fair delight,
When her perfections bide.
Helen, I grant, might pleasing be,
And Ros'mund was as sweet as she."

And, as Shirley said, "There's wit in every flower, if thou canst gather it."

I suppose most people will agree that *C. luteus*, with its varieties, is altogether our most precious species of *Crocus*. The beautiful golden-yellow flowers, when seen against a green background and exposed to full sunshine, afford one of the sights of the floral world. Each flower will be found, if examined, to have the tube around the style at least half full of honey secreted by the ovary. The great majority of *Crocus* species produce flowers which are purplish or lilac in colour; still there are interesting differences, and all are worth growing. The deep orange colour of the stigma of *Crocus vernus* is a gorgeous object, and shows to special advantage in the white varieties. The two earliest species to bloom with me were *C. reticulatus* and *C. Imperati*.

Crocuses are obviously suitable for naturalising in grass, for practically every species blooms in late autumn or early spring, before the grass begins to grow.

This remark also applies to Snowdrops, of which several beautiful species are now to be obtained from the florists. Of all the kinds, *G. Elwesii* most strikes my fancy, but I find the flowers rather variable, some being almost globular, and others oblong in shape. The green grooves on the inner segments of the perianth also are very variable in depth of colour, some being quite pale, and others emerald. These grooves produce and hold the honey, to obtain which an insect visitor must knock the processes which project from the anthers towards the petals, and thus bring down a shower of pollen on his body. The green markings on the inner petals (the outer segments of the perianth are pure white), largely contribute to the beauty of the flower. The orange-coloured stamens also afford added beauty. The scent is not really pleasant to most persons. *Galanthus Imperati* has given the larger flowers, but they strike me as coarser than those of *Elwes'* species. The latter in nature is said to be associated with *Chionodoxa*, one of the most beautiful hardy flowers recently made common in England. I have some splendid clumps of *Chionodoxa Lucilia*, *C. Sardensis*, with flowers of darker blue, and *C. gigantea* with lilac tips to its petals. In appearance they somewhat resemble the *Scillas*, especially *S. bifolia*, of which I have a charming clump now in flower. A mass of blue and white Roman Hyacinths

has been much admired, although the flowers seem to me a little too waxy. For weeks past the six-rayed stars of *Triteleia uniflora* have afforded continuous display. Its beauty, hardness, and season of flowering should cause the *Triteleia* to be much more grown.

Several species of *Anemone* are in flower, but of these I must write another time. I have also *Cyclamens*, *Daisies* (of which the double kinds are not to be compared to the beautiful wild one—descended, one may well believe, from the flowers plucked and dropped by naughty imps who for a quarter of an hour frolicked in the flowery meadows of heaven), *Arabis*, *Wallflowers*, *Polyanthuses*, *Muscari*, *Narcissi*, and other beautiful plants in bloom. But I think that the loveliest of all is the rich dark flower of *Iris reticulata*, with its glowing blotches of orange, and its markings of white, black, and every shade of violet. The plant is named from the netted character of the bulb. It is amusing to note the assumed etymological wisdom in many descriptions of the flower. "Blue flowers reticulated with gold," "of a rich violet-purple, veined and reticulated with a darker shade," so run the descriptions in two well-known publications. *Iris reticulata Krelagei* is also in flower, but is a much duller object than the type.

The past month has been a month of exceptional sickness, so that I have not been able to give much thought or attention to my garden. Fortunately, it has gone along all right without my care, thus contrasting with the glass-box gardens of the extravagant, which require continuous ministrations. Open-air gardening is the kind which I recommend to country doctors, who cannot, by the nature of their occupation, give that regular attention to plants within doors without which they are doomed to failure. I find gardening a most satisfactory hobby in many ways. For one thing, it can be plied within call of the surgery-bell; moreover, it is a great help in conducting friendly intercourse with patients. Most people of every class are interested in some branch of gardening, and are glad to hear tidings of Peas, Potatoes, or Pansies.

A doctor can do much to foster intelligent gardening practice, both by example and teaching; and he has many opportunities of spreading beautiful flowers by wise gifts of seeds, cuttings, or plants. The English cottage garden is sometimes a little gem of beauty; but it is much more often an untidy neglected piece of waste ground. Country parsons and doctors might do a great deal towards altering this. *Henry Roberts.*

THE LARGE-FLOWERED LILY-OF-THE-VALLEY.

CONVALLARIA majalis grandiflora or Fortin's large-flowered Lily-of-the-Valley, is a plant with a certain future. As a proof, I send you with this a box containing forced plants of this fine variety; also a photograph of a basket showing the plant in a forced condition in winter, and side by side with a pot of a good but old variety of forced Lily-of-the-Valley, such as is grown in and exported from Germany (fig. 60). In this photo, the vigour and habit of *Convallaria Fortini* are seen to be far superior in all ways to the variety of Lily forced hitherto, and that it is only a question of time before Fortin's variety supersedes the older kinds.

Fortin's variety when forced, grows from 11 to 12 inches high, and the racemes bear from fifteen to eighteen flowers each. The plant possesses this great advantage that it bears simultaneously with the flowers fine leaves, while with the older variety these are formed later. As will be seen by the specimens sent, the flower stems are strong and firm, and remain so when the variety is forced, though they may be a foot high. This is an excellent quality in a market plant. This Fortin variety is easily distinguishable from the older sorts of forcing Lilies. The foliage is a different tint; it is a bluish, glaucous green. [The inflorescence is erect, giving off flowers on all sides (not drooping and secund as in the common form), and larger. ED.]

The coloured plate given in the *Garden* on Sept. 4, 1897, is true as regards the size of the flowers

and their colour, but is misleading as regards the habit. The leaves and flower-stems are always stiff and erect, never drooping as in the illustration. It is painters' licence to wish to improve upon Nature that he may produce an "artistic" picture.

I do not know how Fortin's Lily-of-the-Valley would force for Christmas and the New Year, or rather, my experiments in that direction have so far failed; but for use in January and February, Fortin's variety is superior to the other. The flowers are as large as those of *Clethra arborea*. *Otto Froebel, Zurich.*



FIG. 60.—THE LARGE-FLOWERED LILY OF THE VALLEY
(Spike real size, plant reduced $\frac{1}{3}$.)

THE ROSARY.

HYBRID SWEET BRIARS.

It was a happy thought of Lord Penzance's when the cry was raised that we wanted some novelty in our Rose gardens, to devote himself to the crossing of the Sweet Briar; and, like all true gardeners, he has not hidden his method of procedure, or failed to tell of his failures, as well as of his successes, for in the pages of the *Rosarian's Year-Book* for 1892 and 1896, he has given a detailed account of his efforts of cross hybridisation, and shown us with what zeal and earnestness one who has reached his fourscore years can pursue a subject on which he has set his heart.

He did not work at random, but laid down distinctly the object which he was seeking, and the methods he used for that purpose; he tells us that he was very anxious to obtain a yellow Rose whose foliage and flower should have the sweet perfume of the Sweet Briar. The principle on which Lord Penzance acted is this, that the various races of Roses, however distinct they might seem to be, "and apparently opposed to one another in wood and spine, in habit of growth, in foliage, in hardiness, and other outward characteristics, are capable of uniting in the production of a common progeny, a progeny which is distinctly different from either parent, though generally bearing undoubted proofs of their origin in traces of both seed and pollen-parent." He was very anxious to obtain a good yellow Rose, and tells us how he crossed the Austrian Yellow, Persian Yellow, and Harrisoni, with such hybrid perpetuals as General Jacqueminot and Jean Chérpin. From this cross he obtained some hundreds of plants, but says that amongst those which had bloomed with him he could trace but very little effect of the yellow in the progeny, and thought the result indicated failure; but as these were not Sweet Briars, they are rather outside his original intention, and I think that it is to the Sweet Briars that Rose-growers mainly look to the success of this work. Some curious results were obtained in the course of the work: thus, he mentions that by taking away the hips as soon as formed, he was surprised to find that the plants gave a plentiful crop of second blooms, and that all through August and September, and part of October, he was able to gather a quantity of flowers, and adds that had he picked off the blooms immediately after flowering, he believes he should have had a more effective display; this, of course, increases their value. I have observed the same thing in some other single Roses without even gathering the hips; thus, in the Single White and Carmine Pillar sent out by Messrs. Paul & Son, of Cheshunt, I have had during the last two years a considerable quantity of autumnal blooms. He has also tried the effect of crossing some of these hybrid Sweet Briars with the pollen of Hybrid Perpetuals, but as yet success has not attended his efforts; and that also has an ominous significance, as coming from one who is in his eighty-third year. While Lord Penzance has attempted various crossings, his most successful results have been in a quarter which he did not himself expect, viz., that of the Tea Rose, whereas, he says, nothing could be more distinct than the foliage of the two classes, and that in the hybrids obtained he has had strong evidence that the cross has been effected. As yet, no bloom of these cross-hybridisations has had more than two rows of petals, but he is sanguine that more double flower will be obtained; and as the entire stock has passed into the hands of Messrs. Keynes, Williams & Co. of Salisbury, it may be that as they have a large sale for them, they will be tempted to carry on still further these interesting experiments.

Certainly two of the most remarkable Roses out of the sixteen which have been distributed are Lord Penzance and Lady Penzance, the former the result of a cross between the Sweet Briar and Harrisoni, and Lady Penzance a cross between Sweet Briar and Austrian Copper. Some of the Roses differ considerably in habit, some being long and branching, and others pendulous; there is not, perhaps, so much variation in colour as one might wish, but we have shades of pink, rose, dark crimson, and scarlet-crimson, besides the soft yellow and fawn in Lord and Lady Penzance.

And now let us see how these are to be best grown: there are three ways in which their beauty may be utilized, those which have a pendulous habit form very pretty objects when grown as standards, the branches droop, and whether in flower or fruit, are exceedingly useful—although, as I have said, greater value may be obtained out of them by taking off the fruit as soon as the hip is formed. The most general way, however, in which I think they are most likely to be used is that of fence or pillar Roses: they form long straggling shoots which are quite suitable for a fence, and I have in my small garden a few of them thus used, and they are very pretty and

effective; also, they can be used as bush Roses. There is one point which must be particularly noticed in their cultivation: they ought never to be pruned, at least in the ordinary acceptance of that term; the shoots should never be shortened, for if treated like other hybrid perpetual and other Roses, they will never flower. Straggling and unsightly pieces may be cut out, so giving freer access to light and air. It is very difficult to make some gardeners understand that one system of pruning is not good all round; of course, these hybrids are perfectly hardy, and will stand any amount of cold. While I am on this subject I may mention a Sweet Briar which I was the means of introducing to the Rose-world, though I utterly disclaim all merit for so doing. A good many years ago, I noticed in the garden of my friend, Mr. Whitwell, who was then living near Darlington, a remarkable looking Sweet Briar; he did not know its origin, but found it in the garden when he took the house. It must have been tolerably old, for the stem was as thick as a man's arm; the foliage was decidedly that of the Sweet Briar, and the flowers, which had two rows of petals were beautifully striped. I brought it up to one of the meetings of the Royal Horticultural Society, and it was awarded a First-class Certificate—an honour which I hardly expected it to obtain, and I gave it the name of Janet's Pride, and placed it in the hands of Messrs. Paul & Sons, of Cheshunt, who, after some difficulty, obtained the stock of it, and distributed it to the Rose world, and one hardly ever sees a stand of garden Roses at any of our exhibitions in the earlier part of the season that does not contain a group of it.

The Rose world is much indebted to Lord Penzance for the additional pleasure he has given to all lovers of the flower by the successful results of his skill and intelligence, and also for his generosity towards the National Rose Society. For some years he has given a £5 5s. Cup for a stand of garden Roses, which has been competed for at the metropolitan show at the Crystal Palace, and thus tended to encourage that branch of Rose growing in which he has been so successful. *Wild Rose.*

FORESTRY.

WORKING PLANS FOR FORESTS.

It is a painful fact that in many branches of business we are being rapidly cut out by foreigners and especially the Germans, so that to-day the expression "made in Germany," has become quite a bye-word among us. Unfortunately, instead of this stirring us to fresh exertions, we seem to regard it as Kismet, and bewail the "good old days" when things were far different. Many writers have clearly shown by statistics and other cut-and-dried facts that the success of the foreigner is largely due to their system of technical schools, and consequently to their thorough knowledge of their own particular business. In no case is this fact so patent as in the case of forestry. In Germany and France the forest officers, rangers, and guards, have a thorough knowledge of the duties required of them, and are carefully trained in special forest schools. Not only this, but large sample plots are formed to test such theories as the most profitable degrees of thinning, the best species of tree to be grown, &c. Above all, they study the requirements of the purchaser. What the wood-merchant wants is good sound timber and a supply that he can depend upon. If the English merchant wants a certain amount of timber for six months hence he knows he cannot depend on obtaining what he wants in England, owing to the fluctuating supply, and so he is willing to go to the extra expense of sending to Germany for it. This steady annual supply in Germany is owing to the systematic working plan which is drawn up for each forest, and in which it is arranged that an equal amount of wood should be cut over each year, at the same time insuring a steady annual income. Amongst other things, when a working plan is prepared, calculations are made to find out the most profitable rotation, taking into account the

money originally spent in formation with compound interest. For these and other reasons, the importance of a working plan cannot be too greatly estimated. As this requires a trained forest officer, doubtless many think this would entail too great expense, and that the result would not justify the means. Though I doubt this, I would suggest to such economists, that they should employ the services of forest officers at home on furlough from India. These officers have been through a three years' course of forestry at the College of Cooper's Hill, including tours to the forests of France and important places in England. Included in this course is six months practical work in the Black Forest of Germany. In India, where their duties lie, these officers have to form forests, out of waste land, or establish order in existing forests, and form working plans for them. This is identically what is wanted in England, and I think the employment of one of these officers at home on furlough for a short time would be of inestimable service to a large forest owner. If steps were taken in this direction, with our relative freedom from insects, with our mild winters and other advantages in our favour, there is no reason why we should not be able to compete with our foreign rivals on at least equal terms. *H. C. Walker.*

THE WEEK'S WORK.

THE HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham

Fig-trees.—In the colder parts of the country, Fig-trees are usually protected during the winter with bracken, straw, or similar material, and the practice is a good one provided sufficient care is exercised in uncovering the trees again at the proper time. There is a great risk, if the covering is retained in full, that growth may take place to some extent before the covering is removed, and the trees thereby receive a severe check, jeopardising the current season's crop of fruit. The time to uncover varies with the seasons and the district; and in southern counties it will be safe to do so in the middle of this month, while in colder parts it will be soon enough ten days later. If growth should have commenced, only the major part of the covering should be taken away, the tender shoots and fruits will then be protected by what is left, and they will get gradually hardened by access of light. Small fruits of last season's growth should be rubbed off the shoots, for although these will occasionally increase somewhat in size and ripen, they are never satisfactory, and only divert the energies of the tree from perfecting this season's crop. In pruning the trees, let the whole of the weaker shoots be removed entirely, and thus afford the stronger bearing wood plenty of sunlight, for the leaves of the Fig grow so large that it is easy to overcrowd. All young shoots that are left should be nailed-in with 9-inch spaces between them, and as the branches increase in size very fast, some few of the older ones should be removed entirely annually, and thus renew the vigour and youthfulness of the trees, gradually and constantly. These shoots that are nailed-in should not be tipped or shortened in the least, the fruits being always borne at the points of the previous year's shoots, hence, to shorten them is to rob the trees of their fruit-crops. The Fig always bears the best when it is allowed to grow into a head above the top of the wall. Such trees do not come up to the usual standard of correct pruning and training; but the wood made under these circumstances is short-jointed and fruitful, and the fruit better in colour and in quality; and even such a shy bearer as the Brunswick fruits freely if allowed to grow rather wildly in this manner; but it is a method that can only be followed in the southern counties, in colder ones the fruit would not get warmth sufficiently to ripen it. Standard Figs succeed in sheltered positions on the south coast of England, notably at Tarring near Worthing; but in very severe winters the trees suffer from frost unless the practice is followed of storing them in cellars, &c. After the Fig-trees are pruned and nailed, let the borders be loosened with a digging-fork, but afford no manure, Fig-trees being, as a rule, when on outside-walls, too vigorous in growth, and too little inclined to fruit well, without manure being specially placed within reach of the roots, these rambling far and wide in the richly-manured borders adjacent. As a counter

agent to rich feeding grounds for the roots, it is advisable to employ old mortar, charred soil, and even to curtail the extent of the roots either by annual pruning of them, or building a wall round the spot. The finest out-of-doors Figs are Brown Turkey and White Marseilles; both of which are sure and good croppers, and have fruits of a useful size. The Brunswick has the largest fruit. It should only be planted in very warm situations.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorking.

Chysis.—The following varieties of these deciduous Orchids, *C. bractescens*, *C. kevis*, *C. aurea*, *C. Limniphylla*, and the distinct hybrids *C. Sedeni* and *C. Cheloni*, are now making new growths, and if these be strong enough to flower, water the plants but sparingly until the flower-spikes are seen to be growing faster than the growths, when water may be more freely given. Small growing plants will require generous treatment in every respect. These epiphytall plants succeed well suspended close up to the roof-glass in a shady corner of the Cattleya-house. Examine the plants every day for small yellow thrips, for if these become numerous, success is hopeless. Do not disturb the plants by repotting them now, but defer the work until the flowers have faded. These plants require perfect drainage, and a rooting medium composed of two-thirds sphagnum-moss and one of fibrous peat, with a few lumps of charcoal added, or thick pieces of crocks. Keep the plants at the warm end of the Cattleya-house throughout the growing season, and thoroughly water them each time the compost becomes dry, but carefully avoid constant saturation of the soil. Propagation may be effected in the following manner:—If the plant is in vigorous health, and there is no necessity for root disturbance, make an incision with a sharp knife half-way through the rhizome between the old pseudo-bulbs, and when the plant has done flowering the rhizome may be cut through. The oldest bulbs will soon make new breaks, but do not repot the severed pieces until the following year, when the old roots have sent out laterals.

Vandas.—Such plants as *Vanda teres*, *V. Hookeriana*, and the distinct hybrid *Miss Joaquim* should be placed well up to the roof-glass, either in the Mexican-house or in a sunny position in the plant-stove, and every encouragement given them until the flowers open. No difficulty is experienced at Burford in getting these beautiful Orchids to bloom freely; the plants are fixed to Teak-wood rafts, and each stem is allowed to grow to the height of 6 or 7 feet before cutting them down. By this method the growths become strong, and rarely fail to produce flower-spikes. From this date the plants will be syringed overhead with soft tepid water twice or thrice daily until the flowers begin to open. The distinct *Vanda Kimballiana* and *V. Amesiana* are also starting to grow, and those plants that require additional rooting-space should be attended to at once. Baskets or upright Teak cylinders are preferable to pots, as these allow a freer circulation of air amongst the roots. In the case of plants that do not need this extra space, remove the surface potting material, and substitute fresh moss. The plants should be placed close to the roof-glass in the Cattleya-house, and in the lightest and best-ventilated part available. As these species throw their roots out into the air in all directions, it is advisable to syringe in amongst them occasionally, and to keep their immediate surroundings moist during growth.

Miscellaneous.—If such plants as *Peristeria elata*, *P. pendula*, *P. Lindeni*, and *P. aspersa* have been at rest in the intermediate-house, remove them to the shady side of the East Indian-house, and afford an abundance of water until the pseudo-bulbs have attained their full size. A rare Orchid now in bloom at Burford is *Leliopsis domingensis*, a plant that requires plenty of direct sunlight, and an abundance of water while growth is being made. The south side of the East Indian or Mexican-house is the best position for it, and baskets with a very thin layer of peat and moss are more suitable than pots. When the new bulbs have been made up, the plants may be dried almost as much as *Odontoglossum citreum*. In the cool-house, plants of the pretty *Pleione humilis* that have just passed out of flower should be given fresh potting material. Shallow pans, plenty of drainage, and a compost of equal parts fibry loam, peat, and sphagnum-moss, well mixed with a moderate quantity of soft silver sand, is the best culture. Suspend the plant near to a ventilator, or some other position where it will obtain plenty of fresh air, and afford plenty of water all through its

period of growth. The curious-flowering *Nanodes Medusa* must now be given frequent and liberal supplies of water. It should be grown in the *Odontoglossum*-house, either in baskets or shallow pans, as the beauty of its flowers can be seen only by looking through them towards a strong light.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Heliotropes.—If the requirements of those plants which flowered last year have been carefully attended to, they should be capable, on being placed in an intermediate temperature, of making an immediate start into growth. If a further stock of plants be required, some of them may be placed in a brisk heat to furnish shoots suitable for making cuttings. Cuttings are fit when 3 inches long, and then should be inserted in a light sandy soil, coated with silver-sand, afforded water, and then be placed in the propagating-frame or house, and be rooted quickly, and in turn these will yield a further batch of cuttings. Growing plants in need of repotting should have attention forthwith, using a mixture of good loam half a year in stock, leaf-mould, some sand to make it porous, and a small portion of spent Mushroom-bed manure, which has been rubbed through a fine-meshed sieve. Let the plants which have been shifted be syringed daily, but afford them no water for a few days. Standard plants form nice decorative objects, and they may be readily grown of a good size by training up a single growth to form a stem, and pinching out its point when the desired height is reached, and rubbing off the lateral growths, with the exception of five or six near the point, which may grow to 3 inches in length, and be then pinched out in turn, these will soon push forth several other growths, and thus in a short time form a crown.

Pittonias are pretty foliage plants of dwarf habit, of much value for decorative work of various kinds. Cuttings root readily at almost any season, being inserted in the pots in which they are to be grown, viz., 3 and 4-inch pots. *Pittonias* are inmates properly of the stove, and they are very effective when associated with small Ferns, *Selaginellas*, *Lycopodiums*, and green-leaved plants of dwarf habit.

Libonias.—Cuttings may still be struck of the varieties of *Libonia*, but no time should be lost in so doing. Strike them in a light sandy soil, placing them round the side of a 4 or 5-inch pot, and employing a brisk bottom-heat and considerable amount of moisture in the air. If large specimen plants are required in a short space of time, three plants may be grown in a 7-inch pot, but for ordinary purposes a single plant grown in a 5-inch pot will usually suffice. The plants grow well in loam two-thirds, leaf-mould one-third, and sand, but for the last shift rotted manure should be employed as well.

Tuberous-rooted Begonias.—The bulk of tubers may now be placed in sand, and in an intermediate temperature, in order to start them into growth. Tubers that were introduced at an earlier date will stand in need of potting, otherwise the roots may get damaged if allowed to extend much in the leaf-mould. These *Begonias* require a rich compost in order to insure robust plants, and a suitable mixture consists of good fibrous-loam one half, and the rest cow-manure dried and worked through a fine-meshed sieve, leaf-mould, sand, and a small quantity of charcoal-dust. If possible, stand the plants on some cold material, shingle, coal-ashes, &c. in a shady position, and afford a temperature 55° to 60° at night. Much water will not be needed for some time after potting them, but care must be taken that they do not suffer lack of it, or the young roots will fail to start away into the fresh compost.

Sericographis Ghiesbreghtiana.—As the plants go out of flower, take off all the shoots suitable for forming cuttings, and insert in sandy soil; cutting back the plants, and placing them in heat to produce a further supply. It is not necessary to keep the old plants after a sufficient number of cuttings are struck, young plants growing and flowering much more freely than old ones.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

Brussels Sprouts.—As this is a vegetable which requires a long season to perfect its growth, and good Sprouts are often in demand as early as November, seed should forthwith be sown in boxes or seed-pans thinly, and placed in warmth of 50° to 60°; a bed equal to the needs of the establishment should be sown on a warm border. Pricking off

should be done in all cases when the seedlings have made four or five true leaves in rows of 9 x 3 inches, the bed being made friable and rich, the aim being to secure sturdy, well-rooted, plants. Excellent varieties are *Rosebery*, *Exhibition*, *The Wroxtton*, and *Veitch's Paragon*. Autumn-sown Sprouts may be planted in their permanent quarters, before growth to any extent has taken place or they crowd each other. Afford the plants a space of 2½ feet apart each way.

Planting Broad Beans.—If seeds of these Beans were sown in frames and boxes as recommended in my calendar in January, and the plants have been hardened off, transplantation in single rows, 2 feet apart, and 6 inches from plant to plant in the rows, may now be performed. In doing this lift the plants carefully, so as not to cause injury to roots or stems, and having planted them in little trenches with a perpendicular back, afford, before filling in fully, a good watering to settle the soil about the roots, then finish the filling in, make firm, and protect them with evergreen twigs of some sort. In the open quarters make another sowing of Longpods.

Parsley.—If seed of Parsley were not sown last month in drills in the open garden, it should forthwith be sown. The land should be in good heart, and situated in an open spot, and the drills not nearer together than 1½ feet.

Sowing Seeds and Planting Pot Herbs.—Seeds of Chervil, Burnet, Fennel, Borage, Sweet Marjoram, Marigold, Savory, may now be sown on a warm border where they are to remain, covering them in the case of the more tender species with a hand-glass. The seedlings should be thinned out to 3 or 4 inches apart. Sweet Basil being the most tender of herbs, sowings should be made in a warm frame, or in pots placed in heat, the plants being set out in May. Herbs should be planted altogether on a warm open border in order to save time in gathering for use. The following may be planted this month, and as late as the middle of April:—Balm, Burnet, Tansy, Feverfew, Savory, Pennyroyal, Camomils, Thyme, Hyssop, and Tarragon.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Late Peaches.—The buds on the trees in the late houses having begun to swell, forcing may forthwith commence if fruit be required late in the season. Still, it is possible to retard the trees a little longer by affording every opening for air to enter the house, only closing the ventilators when sharp frosts are likely to occur, letting the hot water circulate somewhat to avoid an accident. In unheated houses the trees are now coming into bloom, and there seems to be a likelihood of a good set of fruit with us. Before the flowers begin to open, fumigate or vaporise the trees, fumigating rather strongly if tobacco-paper be used on two or three occasions. If the trees are in flower in any house, maintain the required temperature by means of the apparatus, affording an increase of warmth of 5° to 8° in the daytime, and endeavour to maintain a buoyant atmosphere by admitting air as freely as the weather will safely permit; and in all respects follow out directions given in an earlier calendar for Peach-trees in bloom.

Early-houses.—Let the disbudding be gradually carried out at short intervals of time, the tying-in of the young shoots, and the thinning of the fruit, once a day for the present receive proper attention, the trees being syringed, doing this operation thoroughly, and from both sides of the trees, so as to keep the trees free from red-spider. If brown-scale should appear on the rind, syringe the affected trees twice a week with soft-soap and water, at the rate of 2 oz. of the soap to 1 gallon of warm water. Aphis is sure to infest the trees at the first, and fumigation will require to be frequent, in order to get rid of it, XL All vapour being one of the safest means for killing aphis without causing injury to the tenderest leaves. Thrips will be destroyed by the same dose of vapour. Mildew, if it appear, should be checked in its earliest stage, with flowers-of-sulphur mixed into a thin paste, and then half a pint added to 2 gallons of water, and distributed by means of a syringe with a nozzle, and allowed to remain on the leaves, &c., for a few days, being then cleared off with soft-water. Mildew is not easily detected on the fruit in the early stage, which is that of minute white spots that are only a shade lighter than the skin.

Cherries and Plums.—While the trees are in bloom, the temperature of the house and their other require-

ments are similar to those of the Peach and Nectarine—indeed, Peach treatment may be followed through the early swelling and stoning period of the fruit; but in dealing with the breastwood it should be left 2 to 3 inches long. The Cherry-trees are subject to black, and the Plum to green aphides, and the latter to be infested with caterpillars. The caterpillars will be found rolled up in the leaves, and should be smashed with the finger and thumb.

Grape Gros Colmar.—Assuming that these Vines were started late in last month in order to have the fruit in perfection in early October, the buds will have considerably developed, rendering it imperative to secure the rods to the trellis, provided the break has been regular from base to summit. Attend to previous instructions in early vineries, and make sure that the borders are in a sufficiently moist condition to promote regular and continued growth. If a hot-bed exists in the house it should now be cleared out.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

The Rose Garden.—The time has arrived when the hybrid perpetual Roses, without an exception, should be pruned, although the wintry weather prevailing at this moment scarcely favours a commencement of operations; nevertheless, pruning will have to be performed, for most of the bushes of H.P.'s are already in growth. The pruning of Roses is an operation which should be entrusted to a person conversant with the habit and growth of the various varieties; hence, a Rose of naturally weak growth or constitution must not be pruned as severely as one of strong growth and robust constitution. Neither should all the shoots be cut to one height from the ground-level. Plants that are thus mishandled flower, of course, in due season, but the flowers are different as regards form and colour to those of the same variety where the proper amount of care is used. Briefly stated, the plants which are required to furnish very fine show flowers should be the more severely pruned, as a great quantity of growth is not so much required as good quality; therefore, remove all the smaller shoots and branches, and leave only the strongest. If plants are required to make a display in the rosary, the pruning should be less severe, but weakly growths should be removed entirely, as well as all decayed old wood, and the remaining shoots cut back to various heights from 6 inches to 1 foot, bearing in mind the while the constitution of the variety. Plants that are to be pegged down to the soil should have the leading shoots shortened back, and all the side shoots originating from these cut in close. Climbing Roses should have the tip taken from the strong growths, and all thin and flowerless and bare shoots removed. When pruning Roses, use a sharp knife, and make clean short cuts. The *secateur* is a handy implement for use instead of a knife, or it may be reserved for snags only. As the wounds of the Rose seldom heal over it, it scarcely matters what instrument is used. The more tender Tea and hybrid Tea Roses should be left unpruned till the end of the month, and in cold exposed districts or gardens to the first week in April. China or monthly Roses, as they are called, should be thinned out, and as the flowering shoots spring from the collar of the plant, the weak ones should be cut down to that part. The other shoots may be left shorter or longer according to strength. Pillar Roses should have the oldest stems removed at the ground-level, laying in a corresponding number of strong new shoots at varying lengths.

Digitalis purpurea (Foxglove).—The spotted varieties of this plant should be found in every herbaceous border and shrubbery. It is also a fine plant for the centres of large beds. Those plants which were raised from seed sown last spring may forthwith be planted where they are intended to flower.

Campanula pyramidalis and *Campanula calycanthema*.—The plants raised from seed sown last year will now be ready for planting where they are intended to flower. Let the sites be well manured and deeply dug, allow space for full development, and plant firmly.

General Remarks.—The planting of all kinds of shrubs, excepting Hollies, should be finished forthwith, deciduous species being already in growth. Climbers should be planted without further delay; roll gravel walks that have been rendered loose on the surface, choosing a dry morning when the gravel does not cling to the roller for the performance of this sort of work. The lawn and turf generally should be swept and rolled.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY,	MARCH 14	Annual Meet. United Hort. Ben. and Prov. Inst. at Caledonian Hotel, at 8 P.M.
TUESDAY,	MARCH 15	Cornwall Daffodil and Spring Flower Show at Truro (two days).
THURSDAY,	MARCH 17	Linnean Society Meet.

SALES.

MONDAY,	MARCH 14	Hardy Perennials, Carnations, Begonias, Dahlias, &c., at Protheroe & Morris' Rooms.
TUESDAY,	MARCH 15	Roses, Gladioli, Carnations, Hardy Bulbs, and Plants, &c., at Protheroe & Morris' Rooms.
WEDNESDAY,	MARCH 16	Japanese Lilies, Palm Seeds, Continental Plants, Herbaceous Plants, &c., at Protheroe & Morris' Rooms. Palms and Plants, from Ghent, also Roses, Fruit Trees, and Border Plants, at Stevens' Rooms.
THURSDAY,	MARCH 17	Clearance Sale of Glass Erections &c., at "Olanthigh," Pudding Lane, Chigwell, by Protheroe & Morris. Plants, Shrubs, Bulbs, Roses, &c., at Stevens' Rooms.
FRIDAY,	MARCH 18	Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—42° 6°.

ACTUAL TEMPERATURES:—

LONDON.—March 9 (6 P.M.): Max., 45°; Min., 38°.

PROVINCES.—March 9 (6 P.M.): Max., 48°, Valentia; Min., 39°, S.E. Coast.

Cold, easterly winds; slight frost.

The Origin of Species by M. J. COSTANTIN published in the *Revue Scientifique* (November 27, 1897) an extract of a work of his, entitled *Les Végétaux et les Milieux Cosmiques*. He had already written several articles in the *Annales des Sciences Naturelles*, &c., illustrating the great effects produced upon plants by their surroundings; and he now bases his argument upon the particular case of Arctic and Alpine plants. The modifications upon plant-structures are not only "profound," but are made in "a relatively short space of time." Thus, annuals which are transplanted from a temperate to an Arctic climate, become perennials and dwarfs, such results being due to the too short a period for growth in dimension and maturation of seed.

If the plant be woody, the heat of the soil induces procumbency of the branches. Similarly, if annuals be transported to the tropics, transformations equally great, but exactly opposite in character in some respects follow; thus, as there is no low winter temperature to check and kill the annual growths, herbaceous plants and deciduous trees become evergreens. In tropical forests many plants growing in the shade are partially blanched, and thereby induced to become climbers; other species of the same genus not so situated, are not climbers, as species of *Convolvulus* in deserts, &c.

On the other hand, marine Algae are modified in an opposite way. The water of an icy sea dissolves more nourishment than does heated water. The Polar Algae thereby grow to enormous lengths and gigantic size. Besides such alterations as the above-mentioned, experiments show that if the conditions be constant, a fixation of characters is the result; and so varieties give rise to races; and just as these

occur abundantly under cultivation, so do they in Nature. Very often the origin of these "little species," or stable forms of varieties, is unknown; but it is not always so, and we then get a glimpse of the manner of birth of sub-species.

Some Darwinists, M. COSTANTIN notes, would assert that such variations are transient, and that variability is limited; but experiments show that we can induce varieties to arise "absolutely comparable in all their characters to alpine and Arctic plants, and by a prolongation of the experiment, these varieties can become races, and such are among the most constant of a Polar flora.

"We are thus led to conclude that one can only explain the general characters of arctic and alpine plants by adaptation. Hence, since all the arctic plants are perennials, it is because they live near the pole. It is the conditions of life which have created their hereditary characters."

The author observes, e.g., that the only perennial species of *Isatis* is *I. alpina*; so also the alpine species of *Draba* are perennials having their leaves in rosettes, while those of the annual species of the lowlands are not so. These coincidences can be multiplied indefinitely, and apply generally to the Linnean species. Moreover, the changes are not solely in the vegetative organs, for the flowers are more or less modified as well; and these "little" species have as much fixity as the "great" Linnean species. M. JORDAN proved the constancy of small differences in some 200 cases of "stable little species," and these have been confirmed by several other botanists. MM. THURET and BORNET submitted them to a vigorous control, and they thus wrote:—"Seven years in succession we sowed fourteen species of *Erophila* (*Draba*), and they have shown no variations nor hybrids." We have proved that these "espèces Jordanniennes" have been derived from Linnean types; we know, not only in what conditions they have arisen, but we are led to think by similar reasoning that the larger species may have arisen in the same way.

M. NAUDIN, in 1874, considered that the belief in the effect of the environment was exaggerated, and that plants varied "in virtue of an intrinsic and innate property of protoplasm," but as M. COSTANTIN points out, that cannot be proved, whereas in speaking of the action of the environment we simply describe observed facts and the results of experiments. All, therefore, the author maintains is that the plant re-acts to climatic "physico-chemical" conditions, varies in response to them, and the variations in due time become fixed.

He next considers the objections based on the ideas of hybrids and mongrels. To those who maintain that although crosses and mongrels are perfectly fertile, yet the supposed sterility of hybrids proves the parents to be true species, the author shows the utter inadequacy of this conception, for all florists know that perfect fertility is common enough in our numerous garden hybrids. He refers to the "indefinite fecundity" of *Ægilops speltaformis*, the result of crossing Wheat with *Æ. triticoides*—itself a hybrid between *Æ. ovata* and Wheat. This cross was raised in 1856, and was still cultivated in 1870. It is true in some places there were reversions towards the original parents, but in 1880 M. COSSON re-examined it and asserts that it is a fertile hybrid, fixed, and has become a true species, since its characters no longer vary, and it has lost nothing in fertility.

After a further discussion of hybrids and varieties, showing that they often behave alike, M. COSTANTIN points out how a definition of species has had to be altered from time to time as criticisms have undermined the original notion of their absolute fixity; and that all inferences based on the sterility of hybrids have broken down. He will, therefore, hold to the definition of LAMARCK:—"The species is a collection of similar individuals, which perpetuate themselves in the same state as long as the circumstances of their situation do not change sufficiently to bring about variations in their habits, their characters and their forms."

In conclusion, M. COSTANTIN adds: "A species, as LINNEUS used the word, is not stable. The criterion supplied by crossing allows no distinction between hybrids and mongrels."

ABBAY GROUNDS, TRESCO, SCILLY.—The pictorial view represented at fig. 61 is from the Abbey Gardens, Treseo, Scilly Islands. The cut tells its own tale; it is only necessary to add that the *Dracena* in luxuriant flower is the New Zealand *Cordylina australis*, a tree hardy in some of the south-western counties, but requiring a greenhouse in most places. Our illustration is taken from a photograph by Mr. R. Preston, of Penzance.

NATIONAL ROSE SOCIETY.—The schedules for the Bath Exhibition, on June 23, and for that at the Crystal Palace, on July 2, are now issued.

"BOTANICAL MAGAZINE."—The plants figured in the March number are the following:—

Camptosema pinnatum.—A glabrous shrub, 3 to 5 feet high, with unequally pinnate leaves, the leaflets drooping, shortly-stalked, oblong, acuminate, each 6 or 7 inches long, 2 to 3 inches broad. The flowers are in short racemes, each about 2 inches long, with a cylindric calyx, slightly lobed at the edge, half the length of the cylindric lilac, papilionaceous corolla. A native of Brazil, flowered in the Palm-house at Kew; t. 7582.

Erythronium Hartwegii.—*Sec Gard. Chron.*, 1896, ii., p. 361.—A species with mottled leaves and flower-segments recurved, white, with a yellow blotch at the base; t. 7583.

Dracena Godseffiana, *Gard. Chron.*, 1894, ii., 212; t. 7584.

Haecquetia Epipactis, D.C.—As *Dondia Epipactis* this curious little Umbellifer has been known for upwards of 300 years; how long it has been in cultivation seems to be doubtful. It is not in *Aiton*, according to the editor, nor is it in *Miller's Gardeners' Dictionary*, ed. 8; t. 7585.

Epidendrum xanthinum.—A tall-growing Brazilian species, with alternate sessile, oblong-acute, distichous leaves, and terminal globose heads of small yellow flowers. The three-lobed lip is laciniate at the margins; t. 7586.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY.—The annual meeting of this society will take place on Monday next, March 14, at 8 P.M., at the Caledonian Hotel, W.C. Mr. GEORGE WYTHES, of Sion House, has kindly consented to preside.

"BIOGRAPHICAL INDEX OF BRITISH AND IRISH BOTANISTS."—We are glad to see that Messrs. BRITTEN and BOULGER have commenced the publication in the *Journal of Botany* of a supplement to their Index of the names of British Botanists. The original work has proved so useful that it is very satisfactory to welcome a continuation, the more so as it will be republished as a pamphlet, and in that form readily bound up with the original work.

JOHN'S "FLOWERS OF THE FIELD."—We learn from the *Journal of Botany* that Mr. G. S. BOULGER is engaged in the preparation of a new edition of this popular book.

THE FOOD OF THE HOUSE-SPARROW.—Mr. GURNEY, of Keswick Hall, Norwich, has been making extensive investigations concerning the food of the house-sparrow during every month of the year. In summarising the results of his enquiries, he states that:—"It may be said that about 75 per cent. of an adult sparrow's food during its life is corn of some kind. The remaining 25 per cent. may be roughly divided as follows:—Seeds of weeds, 10 per cent.; green peas, 4 per cent.; beetles, 3 per cent.; caterpillars, 2 per cent.; insects which fly, 1 per cent.; other things, 5 per cent. In young sparrows, not more than 40 per cent. is corn; while about 40 per

cent. is based on information received in reply to circulars or inquiries sent to localities of the entire United States and Canada. The report, which contains a great amount of solid information, is too long for insertion here; but relatively to the points now under consideration, the united "verdict of the entomologists," formally given, is "that there is an overwhelming mass of testimony to the effect that the sparrow drives away certain of our most valued species of native birds;" and in reply to the question on the circular, "Is it an insect-eater or a seed-eater?" every answer, based on dissection, agrees in attributing to this bird a diet almost wholly vegetable.

after deducting transit costs of from 20 to 36 marks. The senders of Grapes have to exercise the utmost care not to send Vine-leaves as packing, the Russian authorities being extremely particular in this matter owing to the Phylloxera. As a protection against the intense cold, the packets are securely wrapped in felt or woollen cloth of several thicknesses, a number of the packets being then placed together in one package and made secure. Could not our Grape-growers find an opening in this direction?

THE CHEMISTRY OF THE GARDEN.—Mr. HERBERT COUSENS has published, through Messrs. MAC-



FIG. 61.—CORDYLINAE AUSTRALIS IN THE ABBEY GARDENS, TRESCO, SCILLY ISLES (SEE P. 152.)

cent. consists of caterpillars, and 10 per cent. of small beetles. . . . Sparrows should be killed for dissection in the afternoon. If the sparrows are caught at night, they have digested their food in a great measure." The *Agricultural Gazette* of New South Wales (whence is taken the above extract) speaks of the rapid increase of the sparrow in that colony and in America, "consequent on the ill-advised introduction by private enterprise of this bird." At a meeting, at Washington, of the Council of the American Ornithologists' Union, the committee rendered its final report of considerations as to the serviceableness or otherwise of the sparrow, these

THE RUSSIAN-WINTER FLOWER AND GRAPE TRADE.—There is a pretty lively and remunerative trade done in cut-flowers of Carnations, Roses, Violets, &c., during the early months of the year with Nice and other parts of Southern France, most of which passes through Paris *via* the German railway system to St. Petersburg and Moscow. Grapes are likewise imported to the extent of about 36,000 puds annually. A pud equals 36·38 kilogrammes. The goods are packed in wooden boxes having a gross weight of 5 kiles., or a net weight of flowers, &c., of 3 kiles. The Russian custom duty is 50 kopecks in gold per pud; and the contents of a packet sell for 50 to 60 marks—a profitable price

MILLAN, an original little primer on the subject of chemistry as applied to gardening practice. The originality consists in the treatment, for anyone looking down the table of contents would see nothing but the old headings; a further glance would show that the subjects are freshly treated, and those whose business it is to read and consult such treatises will be thankful accordingly. The desirability of establishing experimental plots on every farm is emphasised as of greater importance than mere chemical analysis. The "ash" represents only the constitution of the plant dead and cremated, it yields very little information as to the actual constitution of

particular parts of the plant during life, or at the different periods of its life. The questions relating to manures are also well treated, and the extravagance entailed in the use of many of the much-advertised manures pointed out. The author comes to the same conclusion that we did after causing a number of these manures to be analysed, viz., that they are for the most part good in their way, and free from what may be called intentional adulteration, but that their cost is prodigiously greater than it need be. The author gives in the present book several prescriptions for the formation of manures for special purposes, and which can be obtained from any druggist at a small fraction of the cost of the patent manures. The remarks on fungicides and spraying are amply worthy of perusal, and it is encouraging to learn that at last farmers and gardeners are beginning to shake off their apathy in this matter. We must give credit to the County Councils for this improvement. The exhortations of the press, as we know, effected little till the establishment of the County Councils.

LA QUESTION DE LA PROTECTION DES OISEAUX EN EUROPE.—A paper has been issued by Dr. OHLSEN (Aix), considering the subject of the destruction of the rare birds, and the probable effects to agriculture and to science generally should the present system of permitting such slaughter be continued. The author proposes that:—1. An International Conference should be summoned as soon as possible for the universal protection of useful birds; 2. This international meeting should work for the protection of nesting birds and for birds near watercourses in seasons of drought; 3. There should be international legislation for the protection of migratory birds and birds of passage; 4. To render these conditions more easily observed, protective leagues and societies should be encouraged; 5. In elementary schools, the life-history of useful birds and the means of encouraging them should be taught; 6. The habit should be abolished of offering, during industrial exhibitions, prizes for objects destructive to bird-life, guns alone excepted; and 7. An international committee should be formed for the regulation of matters pertaining to sport (shooting) in the various districts.

GREAT ROSE SHOW AT FRANKFORT-ON-THE-MAINE.—An exhibition of Roses will be held at Frankfort-on-the-Maine, commencing in the early days of June next, and lasting, weather permitting, till October. It is the intention of the proposers to make it the finest exhibition of the kind that has ever been held. Herr C. P. BRASCHEIM is the director of the same, and the telegraphic address is "Rosenausstellung—Frankfurtmain."

THE CARNATION SOCIETIES.—The twenty-first annual Report of the National Carnation and Picotee Society (Southern Section).—The Society starts with a balance in hand of £298 16s. 9½d.; a membership of 350. The next exhibition will be held at the Crystal Palace on Wednesday, July 20.—The Midland Carnation and Picotee Society's seventh annual Report contains a report of the show held at the Botanic Garden, Birmingham, on August 5 and 6 last, and a list of the prize-winners on that occasion. The balance-sheet shows that after payment of all expenses there remains a sum of £48 13s. 1d. to be carried forward. The next exhibition will be held in the Birmingham Botanic Garden, Edgbaston, on July 27 and 28.

STOCK-TAKING: FEBRUARY.—Considering the amount of political disquietude evinced in nearly all quarters of the globe, little surprise need be felt at the unsatisfactory state of the Board of Trade Returns for the month of February. The imports have fallen £1,474,290 below those for the month of February last year; the exports by £222,833. Thus the imports for last month were £35,770,874, against £37,245,164—hence the difference. The principal decrease is to be found in articles of food and drink, duty-free and dutiable, viz., £413,070, and in raw materials for textile fabrics, £867,921. There are

other reductions, but these explain the fall. The following is our usual excerpt from the "summary" table of imports:—

IMPORTS.	1897.	1898.	Difference.
Total value ...	£ 37,245,164	£ 35,770,874	—£ 1,474,290
(A.) Articles of food and drink—duty free	11,860,734	11,615,507	—245,227
(B.) Articles of food and drink—dutiable	2,127,045	1,959,202	—167,843
Raw materials for textile manufactures	8,031,535	7,223,664	—867,921
Raw materials for sundry industries and manufactures	2,795,611	2,680,854	—114,757
(A.) Miscellaneous articles	1,130,623	1,226,896	+96,273
(B.) Parcel Post ..	98,243	139,180	+40,937

A large forward movement of cereals has been reported from the Far West, but this will influence the next series of Returns. Clover and grass seeds figure for £107,216; flax seed, £145,316; rape seed, £13,376; and Hops are valued at £133,769. The figures relating to fruits, roots, and vegetables are possibly the strangest we have published for years, and are as follows:—

IMPORTS.	1897.	1898.	Difference.
Fruits, raw:—			
Apples ... ..bush	623,265	176,736	—446,529
Cherries ... .."	...	...	..
Plums"	360	775	+415
Pears"	3,117	2,782	—335
Grapes"	1,405	795	—610
Unenumerated"	39,307	49,221	+9,914
Onions"	552,119	362,263	—189,856
Potatoes ... ..cwt.	40,791	532,483	+492,053
Vegetables, raw, unenumerated ... ..value	£68,514	£71,571	+£3,057

Surely such a set of minus quantities are surprising. In the case of Apples, however, the deficit is easily understood, but the wide publicity given to our selection of figures will doubtless influence exports from neighbouring sources of supply—provided there are sources to be tapped. By the way, the loss on the imports of the two months is placed at £1,320,667; that is to say, the figures for January and February in 1897 are £77,020,832, against £75,700,165 in the present year. In the matter of

EXPORTS

we find a falling off for February amounting to £222,833, accounted for thus: February, 1897, give £17,861,682 against £17,641,849 for the month just ended. The decrease is not a large one, still it is a decrease; the items of increase are to be found in living animals, raw materials, yarn and textile fabrics; keeping in view the recently-concluded engineering strike, we find that machinery and millwork show a reduction of £236,316, but this is much less than was reported last month, and we may conclude that work is once more going merrily on at the various factories. Amongst the articles of food and drink exported are ale and beer, biscuits and bread, butter, cheese, fish, Hops, pickles, preserved fruits, confectionery, meat, salt, spirits, sugar refined and candy. The deficit for the first two months of the year foots up at £777,665, thus accounted for: Two months, 1897, £37,650,918; 1898, £36,873,253. Thus ends a record we hope to find amended in April.

SEED FOODS.—Messrs. JAMES CARTER & Co., High Holborn, having long since acquired reputation for agricultural and flower-seeds, have turned their attention to those seeds which are of importance for food. They have submitted to us samples of Oats prepared in a particular way, and which form an excellent dietetic product. Their preserved butter-beans are also excellent, being more delicate in flavour than the ordinary Haricot. The feeding value of these seeds is already high, but when the horrors of famine, forecasted by Mr. MARSTON, and

some others, are upon us, the value of such productions as those of Messrs. CARTER will be largely increased, as their nutritive value is high, and a crop could be raised in a relatively short time. In the meantime the judicious consumption of these seed foods will brace us up and render us all the better able to contend against such catastrophes if they should happen!

NEW "BRITISH FLORA."—It is announced in the *Journal of Botany* that a new *British Flora*, by Rev. E. F. LINTON, is in preparation. The flora will be arranged according to the last edition of the *London Catalogue*. It is to be hoped that the compiler will be good enough to give the full synonymy, so that those to whom the works of BABINGTON, BENHAM and HOOKER are more or less familiar, may not be utterly confused by the new nomenclature. Fresh specimens of rare or specially interesting plants may be sent to the Rev. E. F. LINTON, Crymlyn, Bournemouth.

FRUIT FROM THE CAPE.—The *Norman*, of the Union Steamship Company's line, has arrived with the second cargo of fruit from the Cape. She brought 242 boxes of Nectarines, in first-class condition, which realised good prices; 62 boxes of freestone Peaches, sold at good prices; 417 boxes of clingstone Peaches, which, for the description of fruit, realised fair prices—these latter are not considered a good sale in this market. Some 30 boxes of black Grapes, which were very small and of poor quality, were sold at only nominal prices. Pears were sent to the amount of 40 boxes, which arrived in good condition, and fair prices were realised for this, the first consignment of the season.

THE SAN JOSÉ SCALE.—We are unwilling to create needless alarm, at the same time it is our duty to warn our fruit-growers of a possible danger, against which the Canadians and some of the States of the Union have already taken action. Considering the enormous quantities of fruit imported from Canada, some of the Eastern United States, and even California, it is but too probable that the scale will make its way to this country. In California damage to the extent of millions of dollars has been effected. Within twelve years it has infested every fruit section of San José, and reached the orchards of Oregon and Washington. Evidently, says the *Canadian Horticulturist*, this pest will infest every orchard in Canada within the next ten years unless the greatest promptitude is taken to destroy it." We have already given illustrations of the insect.

ICONES BOGORIENSES.—Under this title has been published by E. J. BRILL, of Leyden, the first number of a series of illustrations of new or remarkable plants in the Buitenzorg Botanic Gardens, or in the Dutch Indies. The *Icones* are under the special direction of Dr. J. G. BOERLAGE, Assistant-Director of the Buitenzorg Garden. The publication is thus of the nature of *Hooker's Icones*, and chiefly of botanical interest. Numerous analytical details are given, and the text is in Latin and in French. Twenty-five lithographic plates of large octavo size are contained in this first fascicle.

THE ROSE OF HILDESHEIM.—Those of our readers who may have visited this quiet Hanoverian town and noted its ancient cathedral, will doubtless be acquainted with the legend of the ancient Rose-tree which clambers up the massive apse of the sacred edifice. For a thousand years, so the legend goes, this Rose-tree has grown and blossomed, and now its end appears imminent, if German science cannot find an antidote for the insect or "worm" that threatens its existence. Doubtless the plant is very old for a Rose, but that it dates from the ninth century is a ridiculous myth. We gave an illustration of the plant taken from a photograph in these columns on p. 621 of the second volume for 1884.

NEW PUBLICATIONS.—*Lindenia*, special number. —*English Mechanic*.—*Canadian Horticulturist*.—*Who's Who*.—*Florists' Exchange*.—*The Chemistry of the*

Garden, by H. H. Cousens (Macmillan).—*The British Moss-Flora*, by R. Braithwaite, M.D.—*Transactions of the Scottish Horticultural Association*; twenty-first annual report.—*Botanical Gazette*, (Chicago), February 1898.—*Agricultural Journal*, Cape of Good Hope, February 3.—*Board of Park Commissioners of San Francisco*, twenty-sixth annual report for year ending June 30, 1897. A satisfactory Report, and remarkable for the "photo-chromo-lith." illustrations, which are charming for accuracy and colouring.—*Catalogue of Novelties*, E. H. Krolage & Sons, Bloemhof Nurseries, Haarlem.—*Der Gärtner und Blumenhändler*.—*Organographie der Pflanzen*, Dr. K. Geibel (Jena).—*Botanisches Centralblatt*.—*Wiener Illustrirte Garten Zeitung*.—*Compte Rendu des Travaux de la Société Nationale d'Horticulture de France*, pendant 1897, M. D. Bois.—*Statistique Horticole du Département de la Seine*, M. D. Bois.—*Bulletin de la Société Française d'Horticulture de Londres*, Année 1896. In addition to reports and notices of the Society, this includes papers on: Cyripèdes hybrides de Veitch, Asparagus, Chrysanthèmes à l'établissement Rochford, Dracenas à feuillage coloré, Davallia, Établissement de MM. J. Veitch & Sons, Culture des Codium, and other horticultural subjects.—*Dictionnaire pratique d'Horticulture*.—*Annales Agronomiques*, February 25.—*La Condition et les Salaires des anciens Jardiniers*, M. Georges Gibault.—*Du Rôle du Pseudocommis Yitis*, Debray, by M. E. Roze.

PLATYCERIUM ANGOLENSE, WELWITSCH.

THIS is a well-marked species of *Platycerium* which has lately been introduced into cultivation by Professor M. Emile Laurent, of Brussels, who spent some years in Upper Congo-land, returning last year, when he presented to Kew various plants and plant-products which he had collected there, among them being a healthy young plant of a *Platycerium*, which he said was most likely *P. angolense*, a good species, quite distinct from *P. aethiopicum*, with which it had been confused. Dr. Welwitsch collected *P. angolense* in Angola in 1855, and it is noted in Hooker and Baker's *Synopsis Filicum* as being "most like *P. aethiopicum*, but it has a broad-cuneate fertile frond, 9 inches wide at the top, without either fork or horns, and with a patch of fruit nearly as broad as the lamina." In 1870 Dr. Schweinfurth found the same species in Niam-Niam, 1500 miles north and inland from Angola, and he named it *P. elephantotis* (see *Bot. Zeit.*, 1871, 361). Mr. Baker has decided that this and *P. angolense* are identical.

The Kew plant here illustrated (fig. 62), is now in a condition to show that *P. angolense* is a distinct and handsome species, with large erect barren fronds and cuneate fertile fronds, which, as shown by dried specimens, attain a length of 18 inches, and a width of 9 inches at the top, narrowing gradually downwards to the base. The upper surface is deep green with darker veins, the lower is covered with a felt-like rust-coloured tomentum, and the sori are in a large roundish patch near the top.

As a species this differs from all other *Platycerium*, in having fertile fronds which, instead of being forked or branched, stag's-horn-like, are distinctly wedge-shaped in outline; there is also the character of the rust-coloured wool on the lower side. A batch of sporelings of *P. angolense* has been raised at Kew. *W. IV.*

BOOK NOTICE.

THE FLORA OF BERKSHIRE. By G. C. Druce, M.A. &c. (Clarendon Press, Oxford.)

THIS is a companion volume to the excellent *Flora of the neighbouring county of Oxford*, which Mr. Druce published some few years since, and like it, is elaborated with a degree of patience and care remarkable in one who is at one and the same time a municipal dignitary, a curator of the Filding herbarium, and a man engaged in business. More than 1,200 species are passed in review, 893 of which

are recognised as indigenous to the county. The distribution of these plants is traced in "botanical districts," arranged according to as many river-bssins, but, as river-boundaries very seldom constitute any real lines of demarcation, the epithet "botanical districts" is a misnomer. A much better arrangement would have been one according to the nature of the soil, alluvium, gravel, sand, peat, loam, chalk, or what it may be, with minor sub-divisions dependent on hill and dale, field or roadside, and so forth.

Berkshire for a short part of its area confronts Oxfordshire, with the Thames between; the City of Oxford being placed in an angle where the two counties meet and share the classic Isis between them. This circumstance will recall to many an old Oxonian rambles in Bagley Wood, where the beautiful *Campanula* or *Wahlenbergia hederacea* and the elegant *Anagallis tenella* still flourish, to Cumnor where *Gagea lutea* is to be found, and rambles in the meadows still decked with *Fritillary*.

The first plant mentioned appears under the very unfamiliar name of *Cervicina* of Delile. Mr. Druce impresses us so much with the extent of his



FIG. 62.—*PLATYCERIUM ANGOLENSE*. ($\frac{1}{2}$ nat. size.)
(Reproduced from a photograph by Mr. A. Griesen, of Kew Gardens.)

learning, and the accuracy of his research that we do not for the moment question his decision as to the fact of priority. We do, however, greatly regret that he has not followed the *Genera Plantarum* of Bentham and Hooker, and the *Index Kewensis*, rather than have disinterred a name that has been left in oblivion for more than three-quarters of a century. Now that we have an authoritative index of names, let no change, save such as a monographer may deem necessary, be made. The subject of nomenclature, however, is one upon which agreement, in spite of judicial decisions and edicts of councils, seems as far off as ever. We gladly pass it by for the sake of reverting to the author's Introduction, which supplies an admirable account of the physical geography of the county, together with lists of the characteristic plants of each formation, and of each of the so-called districts.

Then comes a "Botanologia," or catalogue of botanists who have occupied themselves with Berkshire botany, together with condensed but excellent accounts of their respective lives and doings, beginning with Turner, and ending with Dr. Arnold Lees. We caution the reader, whose time is limited, that if

he once gets immersed in the perusal of this delightful Introduction, he will find the moments slip away much faster than may be always desirable. A local Flora is rarely very interesting save to local botanists, but here is one which, by its Introduction and its numerous miscellaneous notes and comments, will appeal to many a botanist beyond the limit of Berkshire. Making all the necessary allowances, we may compare the impression made upon us to that made long ago by Gerard Edward Smith's *Flora of South-East Kent*, a book that, from schoolboy days, before the century had reached its middle term, till the present, has exercised a fascination over us.

THE FERNERY.

HARDY FERNS.

THE present time affords a favourable opportunity for dividing, transplanting, and generally preparing for the coming season of active growth, since all the species are now on the move, and invigorated by the winter rest, are in a condition to stand a good deal, even in the way of surgical operations, without any damage. In the open ground it may be advisable to defer operations until the middle of March, but where any glass protection is used, such as cold-houses or frames, they may well be overhauled in February, since the subsequent risk of a "cold snap" can be the better provided for. Deciduous Ferns in pots which have been plunged out of doors, should now be restored to their summer quarters, and as worms often find cozy retreats among their roots, and are not desirable tenants, it is as well to turn the plants out and do the necessary eviction, profiting by the opportunity to replace the pots by clean ones, readjusting the drainage, mulching the surface and so on, so as to give a fair start. As we have frequently pointed out, all the species which form definite crowns and send up their fronds shuttlecock-fashion, benefit greatly by being kept to a single crown, instead of being allowed to grow into bushes of numerous ones as they are apt to do if left alone. Some varieties do this so constantly that this keeping to one is impossible, and some small forms derive all their beauty from density of growth. Such, of course, must be allowed to grow on into such specimens as best befits their character, but the large growing plumose and crested varieties in most cases form offsets and divisions in such a fashion that they are easily removed as they appear, and after a time the tendency to form them diminishes and even disappears altogether, a sort of trunk being formed above the soil upon which offsets do not appear.

This sort of multiplication takes two forms, one in which the crown, at first round and symmetrical in its frond production, gradually increases in diameter in one direction, and after throwing up its fronds irregularly, develops into two independent centres of growth, each with its independent shuttlecock. In time these grow outward and apart, and so soon as this is seen to be effected, it is quite safe to insert a wedge and force them asunder, or even to sever the junction with a sharp knife, when each individual will be found to be furnished with its independent quota of roots, and only needs to be properly installed to thrive the better for the divorce, those roots having no competition to contend with. In the other form, small plants appear as bulbils on the sides, and can easily be detached and brought on in thumb-pots. Naturally these operations are attended with much less risk when the Fern fronds are conspicuous by their absence as at present, and if carefully carried out, the subsequent growth will be absolutely unaffected by the operations, beneficially drastic as they may appear in some cases. Very often in turning out a plant scarcely any roots will be found, while the soil is black and unhealthy-looking. This is usually due to over-potting the previous season, so that the root-action failed to keep the soil sweet, and subsequent fermentation, or something like it, eventually killed the bulk of the roots which had been made. In such cases, the best plan is to wash the remaining roots clean in tepid water, removing all the dead ones and any rotten portion of the caudex or rootstalk, the

growing centre of which will probably be found alive and doing its best to live, despite adversity. After such cleansing and removal of dead matter, it will in all probability revive, since the new little roots emitted by the fresh growth will not find themselves forced to penetrate a mass of soured soil in their efforts to extend. In these potting and re-potting operations a sharp look-out should be kept for weevil-grubs, as if that delightful insect, the weevil, be an unwelcome visitor, the small, fat, white, kidney-shaped grubs will frequently be found snugly ensconced in the very root-stock of a languishing plant, whose death they are slowly encompassing, while preparing themselves for an active campaign above-ground in the coming season. The presence of these vermin can often be detected by loose fronds, since they eat away the base, and the fronds fall over. Out-of-doors, the same effect is produced by the leather-coated grub of the daddy-longlegs; and there is a small dark-coloured snail, with a shiny shell (*Helix alliaria*), which gnaws them through above-ground in a very provoking fashion, and brings tears to the eyes of its destroyer with its powerful Onion-like odour. Slugs, too, apart from their devouring propensities, have a knack of laying their "pearls," or eggs resembling pearls, just inside the pots, and these, if not evicted, eventually produce a lively little brood to work havoc among the seedlings. *C. T. Dreury.*

(To be continued.)

CULTURAL MEMORANDA.

CYCLAMEN PERSICUM GIGANTEUM.

I ALWAYS believe that it is never too old to learn, and very often indeed I obtain from these pages practical hints on cultivation that far surpass older methods. The early spring is the best time for sowing *Cyclamen* seed; and the best kind of compost for filling the seed-pots or pans is one that consists of fibrous loam two parts, leaf-mould and decayed manure each one part, with silver-sand in quantity sufficing to keep the soil porous. The whole of these substances must be passed through a sieve with a $\frac{1}{2}$ -inch mesh. The pans or pots should be filled with clean crocks and some charcoal. Fill firmly to within 1 inch of the top, make level, and so thinly broadcast, and just cover the seed with soil, and no more, and over each pot, &c., put a sheet of glass, and place in a warm, moist house, shading from sunshine, but tilting the glass slightly to let moisture escape. The seedlings will appear within a fortnight; and when well above the soil, remove the glass, but afford shade. When large enough, lift very carefully, and pot into 60's; pot firm, and keep the corms just above the surface, using a mixture of the same compost as before stated. Always put good drainage. Grow on in an ordinary greenhouse on a shelf close to the glass, and well shaded.

Place the plants when well established, about the second week in June, in a cold frame, raising them near the glass, shading them and affording plenty of air, the lights being pulled off at night in fine weather. When the pots are filled with roots shift into 48's, mixing a small quantity of artificial manure with the soil, and when well established afford liquid manure twice a week, finally shifting them into the greenhouse. When the flower-buds appear, examine closely for thrip, and if any are seen apply tobacco-powder. After flowering, rest the plants in a cold frame, and in August shake the tubers out of the soil, cut off decayed roots, and repot into 48's, the largest bulbs into 32's, and grow on as before recommended for seedlings. *J. S.*

MARKET GARDENING.

FLOWERS IN THE OPEN.

A GOOD selection of cut flowers of both perennials and annuals commands a ready sale, and remunerative wholesale prices during the summer and early autumn months, in all large town and popular seaside places

of resort. Flowers of substance and distinct colours, and cut with a good length of stem, find most favour with the general public, and these should, as a matter of course, be grown in quantity.

The *Alstroemeria* is a beautiful class of tuberous-rooted hardy plant, producing flowers of great brilliancy of distinct and pleasing shades of colour, and which are invaluable for cutting. *A. aurea* produces very showy bright orange-coloured flowers in umbels; *A. chilensis* is a dwarf-growing species, and sends up immense heads of bloom, varying in shades of white, lilac, rose, salmon, &c.; *A. pulchella*, large heads of white flowers, striped red; *A. psittacina*, dark crimson, splashed with mahogany, height 3 feet; *A. pelegriana*, large heads of purple flowers, beautifully striped; *A. peregrina alba*, umbels of snow-white flowers; this and the preceding one should be afforded a dry, sunny situation. *A. peruviana* produces large heads of crimson flowers; and *A. tricolor* yields a profusion of white flowers which are effectively striped with crimson and yellow. The above-mentioned plants will succeed in any herbaceous border in which the soil is light rather than heavy, and of average fertility and depth.

Large quantities of *Alstroemerias* are grown for supplying wholesale florists in Covent Garden. *Anthericum*, *Aquilegia*, *Coreopsis*, *Delphinium*, *Dereenicum*, *Geum coccineum plenum*, *Helenium*, *Pyrethrum*, *Hesperis matronalis alba-plena*, *Heuchera sanguinea*, *Francia ramosa*, *Gypsophila paniculata*, *Rudbeckia Newmanni*, *Scabiosa caucasica*, *Spiraea Aruncus*, *Astilboidea floribunda*, and *Thalictrum adiantifolium*, are all suitable perennial plants to grow for supplying the cut-flower trade, and the present is a good time for transplanting and making new plantations of them in soil of the description indicated above, and, if possible, in situations which are sheltered from the north and east winds.

Bulbous plants, such as double *Daffodils*, *Snowdrops*, *English and Spanish Irises*, planted a few inches apart in beds or borders, in holes 3 or 4 inches deep, yield good returns in due time; the only expense attached to the culture of these plants after the initial cost of bulbs and planting, being that incurred in the gathering and bunching of the flowers, and the sending of them to retail and wholesale florists; the bulbs annually increasing in size and floriferousness, an occasional manual top-dressing of the ground helping in this direction. *Lilium candidum* (the white garden Lily), and the several sections of the *Gladiolus* are also in demand during the summer and autumn months. Good plantings of the ever-popular Lily of the Valley made in good rich lightish soil, both in sunny and shady situations, always command a ready and remunerative sale. Like kindred subjects, hardy perennial plants (of which those included in the brief list given above, are among the best for marketing) pay for generous treatment in the way of having a good dressing of short light manure dug into and set apart for them, and which requires being thus enriched.

Annals include many charming and valuable kinds of flowers for cutting purposes, and which realise a ready sale, and satisfactory wholesale prices. Foremost among these are *Sweet Peas*, *Mignonette*, *Cornflower* (*Cyanus Blue Victoria*), summer-flowering *Chrysanthemums*, *Stocks*, and *Asters*. No time should be lost in making a good sowing of *Sweet Peas* of the following varieties:—*Queen of England* (fine white), *Scarlet Invincible* (bright scarlet), *Dorothy Tennant* (dark mauve), *Captain of the Blues* (large blue), and *Mrs. Eckford* (fine primrose). Sow the *Peas* somewhat thinly in drills, about 2 inches deep, and from 3 to 3½ feet asunder, in ground which has had a good coating of short manure dug into it, closing the soil in over the seed with the feet. The seed may be drilled in with a machine, where large sowings are made, the drills preferably running north and south. Good sowings should also be made in shallow drills running in the same direction of *Cornflower* and *Mignonette*, allowing a space of 18 inches between the rows, sowing the seed very thinly therein, and covering it lightly with the soil drawn out in forming the drills. *Stocks* and

Asters should be raised in heat; or where this is not available, the seed may be sown in a warm corner out-of-doors, and covered with a few squares of glass, the soil being drawn up a couple of inches outside the space whereon the seed is sown, to rest the glass on. When the plants thus raised are large enough to handle, they should be pricked out a couple of inches apart in a like position, preparatory to transplanting them into good enriched soil, 1 foot apart every way in due time, care being exercised in the matter of watering and airing the little plants in the meantime. *H. W. Ward, Rayleigh.*

LATE-KEEPING DESSERT APPLES.

AMONG the varieties of dessert Apples, which are good eating after the end of the year, a high flavoured one that might be classed as a late Cox's Orange Pippin is still lacking, and the raiser of one that would, under ordinary conditions, remain good till March and April, or May, would be well rewarded, provided the tree was a good cropper. Fruits of Cox's Orange Pippin may, in well-constructed fruit-rooms, be had in good condition till the present date, and later if they are not gathered very early; but it may be accepted as a pretty general fact that the end of the month of December is as late as the fruit is found in most gardens. *Blenheim Orange*, is a favourite fruit with many, and it has passed its best at about the same time. *Adams' Pearmain* is one of the best January Apples, the flavour of fruit taken from trees on rather light soils almost equalling that of Cox's Orange Pippin. The tree is, moreover, a good and regular cropper, the fruits of even size, fully up to dessert standard, and in open situations the colour is a bright crimson. This variety succeeds admirably as a standard on the Crab, or as a bush on the *Paradise stock*. *Cockle Pippin* is another old variety, the fruit of which keeps good till the New Year. It is of middle-size, and of a spicy flavour. The outward appearance of the fruits, however, is not attractive like those of the preceding variety being generally of a greenish or lemon-yellow, and, irregular in outline.

Claygate Pearmain, which I was pleased to see awarded a prize in the flavour competition at the January meeting of the Royal Horticultural Society, is one of our favourite Apples. It is in use in January and February, and in some years later. When grown on orchard-trees it acquires a brisk, Ribston Pippin flavour, but has a softer flesh. It is a Pearmain in shape, and its colour when ripe is russety-lemon-yellow, streaked with red on the exposed side, and in size it is fully up to the usual standard of a dessert Apple. This does not generally appear to be grown to the extent it deserves for its regular cropping qualities.

Golden Reinette is another good-keeping variety of excellent flavour and colour, but the fruits being rather small, it is now not much cultivated. *Hubbard's Pearmain* is another that suffers through being slightly under-sized. The fruit keeps in good condition well into March, and attains a rich colour when ripe, the yellow flesh being firm and of very good flavour. This is usually a fine cropper as a standard tree on the Crab, but was a failure this last season. *Fearn's Pippin*, although not of first quality, is highly coloured, and keeps well. *Dutch Mignonne*, recognised by the Royal Horticultural Society in their select list as a dessert variety, keeps firm to the end of March, and the trees crop regularly. Several orchard standards here have for the past ten years never failed to produce a crop, at times too heavy a one. Selected fruits are very useful for dessert oftentimes at this season, although it seems properly a culinary variety, being an admirable cooker. *Wyken Pippin* is an old variety that keeps into March, sometimes later, it appears to flourish best in the west and midland districts, and is said to be a favourite Apple in the Birmingham markets. *Court Pendu Plat* is an excellent late-keeping Apple of moderate size. This variety is, moreover, a very constant and regular cropper, and bears well when grown as a standard in orchard or bush form. It is one of the latest varieties to open its blossoms in

the spring, and from this circumstance sometimes escapes frosts, which destroys that of earlier-blooming kinds. If asked to mention the best late-keeping dessert Apple, I should unhesitatingly say it is Sturmer Pippin, which, taken on all points, I think cannot be beaten by existing varieties. Grown either as an orchard standard, or in bush form, it invariably crops well: the fruits are of good dessert-size, flesh firm, and flavour good, with a slight likeness to Ribston in it. When ripe it attains a golden-russet colour, with a bronzy-red cheek on the exposed or sunny side, and it may be kept in good condition quite to the end of May. The longer it is left hanging on the trees in autumn, the better are its keeping qualities; and unless very bad weather sets in, this variety should never be gathered until quite the end of October. In selecting six varieties from those above-mentioned in their order of ripening, I should give Cox's Orange Pippin, Adams' Pearmain, Claygate Pearmain, Hubbard's Pearmain, Court Pendu Plat, and Sturmer Pippin. *C. Herrin, Dropmore.*

HOME CORRESPONDENCE.

NEW SPECIES OF TREES SUCCEEDING CONIFER FORESTS.—I saw some remarks in your "Answers to Correspondents" on February 19 respecting hardwood trees succeeding Coniferous forests which have been burnt. There certainly is a natural tendency for forests of one species to be followed by one of some other species, at least sometimes. In Denmark in prehistoric times forests of Pine have been succeeded by Oak and Beech forests. At Boynton, a wood of large Silver Firs was blown down in the great gale on January 7, 1839. The whole wood came up thick with young Silvers, which are now well-grown trees, 9 to 15 inches in diameter. No seedling Silvers will now grow in the wood. They come up sometimes, but never grow for more than three or four years. The wood is full now of seedling Ash and Sycamore. Of course some woods, like the Beech woods of Buckinghamshire, go on growing from seed without limit; but I believe in a succession of crops occasionally applying to trees as to other plants. *C. W. Strickland.*

APPLE DUMELOW'S SEEDLING.—There is little to add to the interesting history of this fine Apple given by Mr. R. Dean on p. 141. I never heard a good reason for one of its most popular names in East Anglia, Dumeller's (Dumelow's) Crab. True, the flesh is firm, crisp, brisk, juicy, but it is rather aromatic than acid, and no Apple grown can well be a more perfect cooker. Sousing Apple is another of its synonyms. This Apple is also known by other names, such as Lord Hampton's Wonder, Lord Duncan, and Fair Maid of Taunton. It was only a few years since, when lecturing on technical education for the Cambridge County Council, that I made full acquaintance of the commercial value and superb quality of this valuable and profitable Apple. Mr. Elliotson, of Bassingborne, Cambs, called me in to consult about his Apple orchard, partially furnished with very healthy trees of this fine sort. They had grown so fast and fruited so little, that he had become weary of waiting for the fruit, and he was anxious to head them, and work his Dumelows with Blenheim Orange or Cox's Orange Pippin. My advice was an emphatic "No; leave them alone another year or two." I claim no credit for the advice, for the signs of the coming harvest of fertility were already visible to all who could read them. Next autumn I was invited to see the harvest in store. I shall never forget it. It amounted to several thousands of bushels, and the fruits were of high quality. The fruit you figured on p. 141 last week was a sample of the crop, painted by my wife. Dumelow's Seedling on the Crab is a vigorous grower, and if fed freely will sow its crops of wild oats in the form of timber for several years; but root-prune or starve the trees into a full crop, and fertility will repeat itself as certainly as among other sorts. On the Paradise or other surface-rooting stocks the variety fruits freely, earlier, and with yet greater constancy than on the Crab. Its high keeping qualities are equal to its almost perfect cooking properties, and its season extends from November to April. We have few or no culinary Apples that command higher prices through December, January, February, and March. In the prosecution of fruit-culture we hear much of the importance of ear-marking certain things for these and kindred purposes. Such varieties of the Apple as

Dumelow's Seedling, when carefully noted as to eye, flesh, skin, stalk, and wood, mark themselves as a security against mistaken identity. The eye is large and open, with broad reflexed segments, set in an irregular, uneven, and fairly deep basin; flesh yellowish-white, firm, crisp, brisk, and very juicy, with an aromatic flavour; skin pale yellow, strewed with large, irregular russet patches or points, with a tinge of red next the sun, occasionally, though rarely, converting the unusually semi-blanch fruit into a bright red checked beauty, shining as if varnished over; the stalk is about half an inch long, deeply inserted in a narrow and funnel-shaped cavity, lined with russet; the wood, especially the long and stout shoots, is thickly covered with large, grayish-white dots, which readily distinguish the kind. Its very substantial merits and its numerous synonyms give special force and point to the advice, that when you ask for the Wellington Apple, see that you get it true, and return or destroy all spurious imitations. *D. T. Fish, 12, Fettes Row, Edinburgh.* [We owe an apology to Mr. Fish for omitting to indicate the source of the excellent illustration last week. *Ed.*]

—Undoubtedly this is one of our very best late Apples, and is a great favourite with the cook; in fact, I have as yet never heard of a single complaint respecting the Wellington, as it is generally named. It is a variety that on cold soils and in cold districts requires a warm autumn to ripen its fruits thoroughly; and then it will keep till the month of May. The fruits, in some seasons, become somewhat spotty, and decay rapidly, especially in damp fruit-rooms. The flesh is crisp and full of juice. It is a variety which is very extensively grown in some parts, and although the trees grow and fruit well in some orchards and gardens, it is at the same time attacked by canker. The fruit in certain soils in the south become as red as those of Bauman's Red Reinette. *H. M.*

ROYAL GARDENERS' ORPHAN FUND.—Seeing your report of the meeting of the Gardeners' Orphan Fund in the *Gardeners' Chronicle* of February 26, I cannot help thinking, on the one hand, how much we, who have its interest at heart, have to be thankful for, especially to our committees, past and present, also to our good Secretary, for the able way in which they have used the money entrusted to them, and for the untiring labour they have given for the benefit of others. Then, again, there are those who have helped us with large sums of money, knowing that they themselves can in no way reap benefit for the same; but, on the other hand, how little we have to thank the gardeners of Great Britain, a body who seem to forget that in helping this Fund [and that of the Gardeners' Benevolent] they are helping themselves, or their survivors, and the consequence of this forgetfulness is, that certainly not one-tenth of them subscribe. I wonder if they have ever thought what the annual income would be if every one, gardeners, foremen, and journeymen, would subscribe one penny a week? I think if they would sit down and work this out, the result would not only surprise them, but it would, I believe, nerve them on to the effort, and with that income secured, many more children would be enjoying help, which now has to be carefully harvested, and the funded property would be increased each year. *Charles Penny.*

POTATO SYON HOUSE PROLIFIC.—These who are in want of a late main crop Potato, which can be well recommended in every way, cannot do better than to add this new variety to their collection. I tested it thoroughly as a cropper on light soil last year, and it turned out extremely well. The variety is exceptionally free from disease, and keeps green for weeks after that of all other varieties had become black or withered, and I have not found a diseased tuber. From October onwards, the tubers are floury and of good flavour; and its present appearance leads one to expect that it will keep good as long as old Potatoes are needed. The tubers are smooth, handsome, pebble-shaped, with shallow eyes, and if they have a fault, it is that they are inclined to be too large for ordinary culinary uses when grown in very rich soil, but as a field Potato it should take a leading position among late varieties. *J. C. Tallack.*

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION'S ELECTIONS.—Your correspondent "An old subscriber," p. 141, and some others, seem to have lost sight of the name and purposes of the Institution, and seem to confound it with the intention and uses of an ordinary benefit society. I think that the Institution as at present worked by the Committee of Management, who annually select a certain number of old subscribers, and leave the general body of applicants to the natural course of benevolence,

adopt a wise and sound principle, as then I think the quality of benevolence, as Shakespeare said of Mercy, "it is twiced blessed to him who gives his votes, than to him who receives." I con ned the list of applicants, and selected the oldest persons who had tried to get elected the greatest number of times, and divided my votes among three of them, and, in racing parlance, I had the satisfaction of "spotting three winners." I quite agree with some of your correspondents, notably our friend Mr. Crump, as to the desirability of canvassing gardeners who are in a position to become annual subscribers, and it is an open question, if a small annual grant from the funds of the Gardeners' Royal Benevolent to a few gardeners of good standing of the stamp of Mr. Crump, advanced as travelling expenses during their usual autumn holiday, would not be money well laid out in the interest of the Institution. *R. M. Newbury, Mar. 5, 1898.*

USELESS MULTIPLICATION OF NAMES.—I have three Hyacinths purchased as bulbs from the same grower, under the names of Queen of England, alba maxima, and La Grandesse. They have been treated in exactly the same way, in the same sized pots, in the same soil, and under the same conditions throughout. All three flowered at exactly the same time. All three are single, and of a pure white, very beautiful, with an immense head of fine bells. But in spite of their having been given three distinct names, I cannot trace the slightest difference between them. For all that one can see, they might have been offsets from the one bulb. One can quite understand that had they been treated differently, they might possibly have shown differences; but in this case, all three were treated identically. Yet although they have been given distinct euphonious and grand names, they show no difference that I can trace, either in colour, shape, size, or time of flowering. If the Royal Horticultural Society could see its way towards discouraging this useless multiplication of names, to the bewilderment of purchasers, it would do a service to scientific horticulture. The only object which seems to be served by it is the expansion of the lists of names in catalogues, which are already far too numerous. *E. Bonavia, M. D.*

GOOSEBERRY-APPLE.—This is a favourite with some of us as a late culinary variety. In fact, I know of no Apple that will keep better; and the tree bears freely. If the fruits are quite mature when gathered, and kept in a cool room or cellar, they will be sound in May and June, and sometimes, indeed, till fresh Apples are fit for use. It is a variety that is very commonly grown in some parts of Kent. *H. Markham.*

GARDENIA CULTURE.—Your correspondent's instructive article on p. 134 has induced me to appeal to him for further information. I have almost ceased to attempt to cultivate Gardenias, owing to canker. Whether in pots or planted out, this disease invariably attacks the plants, and limb after limb is killed, until the plant dies. Occasionally the plant is attacked at the ground-level, and the plant collapses. I have tried various soils, but to no purpose. Freshly-introduced plants usually grow very vigorously, and produce dark-coloured, healthy foliage, but they rarely remain so more than six months. They receive ordinary cultivation, with stove temperature, and during summer both shade and ventilation. Thinking the disease might be contagious, I have not permitted any plants to be placed in the house (an old Pine-stove) for two years past. I now contemplate trying them again in the same house, commencing with a fresh stock. Can your correspondent, "J.," account for the virulence of the disease here, and give any cultural hints that might prevent a recurrence? Are the 6-feet high plants already mentioned shaded at all in summer? and are they given more air than stove-plants usually receive? Is it likely that I have grown the plants too quickly, and that they, being soft, were more susceptible to disease? *J. E.*

STRAWBERRIES GROWN IN A BARREL.—While paying a visit to a friend in Oxfordshire last autumn, I had the pleasure of seeing the novel way of growing Strawberries in a barrel, precisely similar to that given in the note on p. 140 of the *Gardeners' Chronicle*, and upon making inquiries I was informed the plants had given satisfaction. I was struck with the novelty of the idea. I am trying the experiment myself this season with one barrel planted with Royal Sovereign, and I will tell you later what succeeds, if any, that I have with the plants. [Pray do. *Ed.*] *H. G. Blizard, Mottram, Cheshire.*

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 8.—The third meeting of the Committees of the Royal Horticultural Society for the year was held on Tuesday last in the Drill Hall, James Street, Westminster. We had scarcely anticipated such a fine display of exhibits as was made, for, notwithstanding the excessively cold weather, the Hall was well filled with a very miscellaneous and bright exhibition. Orchids were by no means inconspicuous, and, as will be seen from the report given below, a larger number of certificates were awarded by this committee than the others combined. Four large trade exhibits of Cyclamens, and a smaller one also from Brussels, afforded a wealth of bloom, and were a prominent characteristic of the meeting. Those from Belgium were interesting as illustrations of a series of modifications that is taking place in the flowers of this plant under high cultivation, and they suggest that "atrains" of Cyclamens may become as varied even as those of the popular Chinese Primula. Messrs. VERTON demonstrated the beauty of a variety of the double-flowered Cherry as a pot plant for conservatory decoration. Some very pretty Azaleas (*Mollis* × *sinensis*), were shown by Messrs. R. & G. CUTHBERT. Hippeastrums from Captain HOLFORD, and Messrs. VERTON & Sons included several good novelties, and a variety in either group was recommended an Award of Merit. Groups of miscellaneous plants were shown in several instances, and a botanical certificate was recommended by the Floral Committee to *Bryophyllum calycinum*, a panicle of which was shown from the Horticultural College, Holmes Chapel, Cheshire.

A number of Daffodils was shown, and of hardy flowers a few species, including Irises, Scillas, Chionodoxas, &c., but the recent cold winds have caused a severe check to growth of all kinds out of doors. The Fruit Committee recommended the award of a First class Certificate to Cucumber Every Day shown by Mr. O. THOMAS, The Royal Gardens, Frogmore. In the afternoon a discourse upon some of the plants exhibited was given by the Rev. Geo. HENSLOW, F.R.S., being the first delivered by Mr. HENSLOW since the Council have announced his appointment as Professor of Botany to the Society.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. John Fraser, Owen Thomas, J. T. Bennett-Pot, H. B. May, R. Dean, J. H. Fitt, Geo. Stevens, Wm. Howe, J. Hudson, J. Jennings, C. J. Salter, R. B. Lowe, H. Selfe-Leonard, J. Fraser, W. Bain, Chas. Jeffries, J. D. Pawle, Geo. Gordon, Chas. E. Skea, Rev. Geo. Engleheart, Jas. Walker, J. W. Barr, E. T. Cook, H. J. Cuthbert, Harry Turner, Chas. E. Pearson, H. J. Jones, and Geo. Paul.

Choice Ferns of the more popular genera were shown by Messrs. J. HILL & Son, Barrowfield Nursery, Lower Edmonton. Some of the larger specimens were suspended, and the group was faced by a number of baskets containing 3-inch pots, each holding a perfect little plant of one or other species. *Adiantum rhodophyllum* and other distinct varieties of this indispensable genus were capital (Silver-gilt Flora Medal).

Messrs. W. CUTHBERT & Son, Highgate, London, N., contributed a group of various flowering plants, chief among which we noticed a few plants in flower of *Richardia Eliotiana*, and some of the species of hard-wooded greenhouse plants that gardeners still grow in more or less degree—*Epacris* The Premier, Mrs. Pym, and Mont Blanc, and the pretty double-flowered *onosemiflora*, *Boronia megastigma*, *Ericas* in several varieties, *Acacias Drummondii*, and *cordata*. A few plants of *Otchaito Orange*, well fruited, were included.

Messrs. W. BALCHIN & Son, Hassocon's Gate Nurseries, showed a dozen and a half plants of *Boronia megastigma*, perfect specimens of culture, and fragrant as beautiful. A group of plants of *Tetratheca crieoides* from the same establishment was very praiseworthy also.

Messrs. JOHN LAING & Sons, Forest Hill Nurseries, S.E., had a group of miscellaneous plants, inclusive of some choice specimens with ornamental-foliage species. *Dracenas*, *Acacias*, *Ericas*, *Clivcias*, and the first *Caladiums* of the season were noticed, the group being further brightened by a few Orchids in flower (Bronze Banksian Medal).

Clematises in a group were shown by Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton. In 5-inch pots the plants had produced a quantity of flowers, and the varieties were Lady Londeshorey, pale mauve; Fair Rosamond, white; Sir Garnet Welseley, purple; Miss Bateman, white; and Mrs. Quilter, also white (Silver Banksian Medal).

Messrs. T. CHRIS & Sons, Tunbridge Wells Nurseries, exhibited a small group of plants of *Deutzia Lemoinei*, that well portrayed this useful flowering-plant; and a few plants also of *Deutzia parviflora* ×.

A few Irises in pots were shown by Messrs. R. WALLACE & Co., Kilnfield Gardens, Colchester—Iris *alata*, *reticulata*, *orchideis*, *sindjarensis*, *persica*, &c.; also several varieties of *Muscari*.

Mr. GEO. MOUNT'S Roses were delightful. Twenty-four blooms of Catherine Mermet, and single flowers of a large number of other varieties, were as fresh and beautiful as could be expected in summer (Silver Flora Medal).

An excellent collection of Cyclamens was shown by the ST. GEORGE'S NURSERY COMPANY, Hanwell, W. The plants

were beautiful specimens of the finest florists' type possible. The colours, too, were decidedly good, and the flowers large and of rare substance (Silver Banksian Medal).

Cyclamens from the CHURCH ROAD NURSERY COMPANY carried a greater number of leaves, and smaller; and, though the flowers were not quite so good as those already noticed, the collection was a praiseworthy one (Bronze Flora Medal).

The Cyclamens shown by L. P. DE LANGE-VERVAENE, 150, Rue de Constantinople, Saint Gilles, Bruxelles, were very remarkable. Most of the plants represented a strain of frilled, crested, and variously modified flowers that the same firm exhibited in the Drill Hall last year. As might be expected, however, the modifications are more pronounced than then. About twenty plants were shown, and the colours are almost as various as in collections of normal types.

Mr. JNO. MAY, St. Margaret's, Twickenham, also made a fine show with Cyclamens, some of which were remarkable for distinct colour, and the plants generally had been well cultivated (Silver Flora Medal).

Mr. CHAS. TURNER, Royal Nurseries, Slough, who always exhibits florists' flowers in good style, had a collection of Cyclamens that was commendable.

A pretty group of spring-flowering greenhouse and other plants from Messrs. PEED & Sons, Roupell Park Nurseries, Norwood Road, London, S.E., included numerous *Clivcias*, *Azaleas* of the *Mollis* section, *Narcissus*, *Staphyleas*, *Primulas*, &c.

Mr. T. S. WARE, Hale Farm Nurseries, Tottenham, London, made a display of *Narcissus* in pots. A considerable number of varieties were thus shown—*Empress*, *Golden Spur*, *Princeps*, *Henry Irving*, and others. *Victoria*, the new one of last season, is said to force capitally. A number of choice hardy flowers was also shown, including the pretty yellow-flowered *Adonis amurensis*, *Ophrys arnifera*, *Anemone pulsatilla*, *Tulipa violacea*, *Erythronium Dens-canis*, several *Irises*, *Sisyrinchium grandiflorum*, &c.

Messrs. BARR & Sons, King Street, Covent Garden, showed a few of the earlier spring flowers, including *Helleborus* in a few varieties, also *Chionodoxas sardensis*, *gigantea*, and *Lucilia*; *Scillas sibirica*, *S. s. taurica*, some varieties of *Crocus*, *Narcissus* J. G. Baker, *N. cyclamineus*, *N. minimus*, and other species.

MRS. NEWALL, Ferndene, Gateshead-on-Tyne (gr., Mr. W. Hay), exhibited a flowering spray of *Rhododendron argenteum*.

Messrs. JNO. LAING & Sons, Forest Hill Nurseries, London, S.E., showed plants of a semi-double, pink-flowered *Azalea* named *dianthiflora*.

Seedling varieties of *Azaleas* (*Azalea mollis* × *sinensis*), from Messrs. R. & G. CUTHBERT, Southgate, Middlesex, composed a floral picture of very many shades, but all of them are pretty. A few had names attached to them such as *Madame C. Legelle*, *D. Harris*, *Alphonse Lavallée*, *W. E. Gumbleton*, (creamy yellow with darker spotting), *Comte de Gomer*, &c. These were the most distinct, but the others are equally pretty (Silver Banksian Medal). Messrs. R. & G. CUTHBERT exhibited plants of *Azalea Yodogama*, a semi-double, lilac-flowered Japanese variety.

A few new *Hippeastrums* from Captain HOLFORD, Weston-birt, Tetbury, Gloucester (gr., Mr. A. Chapman), exhibited very fine merit. Fine dark crim on varieties were *Stromboli*, *Princess Uenia*, and *Lucania*, and a few of the lighter pencilled-flowered sorts were good. An Award of Merit was recommended to the variety *Princess Osra*, a very large flower, colour scarlet, each segment possessing a band of white in centre.

Messrs. JAS. VEITCH & Sons, Royal Exotic Nursery, King's Road, Chelsea, showed a group of *Hippeastrums*, inclusive of a number of new varieties of merit. An award was made to *Navala*, a rather large flower approaching cup shape, segments very much rounded, bright red in colour, with green base, spike as shown uncommonly short. A group of young plants of a double-flowering Cherry (*Cerasus pseudo-Cerasus*, Waterer's var.) attracted considerable attention. They were profusely flowered, and the pretty tints of the floral trusses are most effective. For conservatory-decoration no plant could be more desirable. A few plants of *Prunus sinensis* fl.-pl. in flower accompanied the above (Silver Banksian Medal).

An Award of Merit was recommended to *Azalea grandiflora* alba, a large-flowered greenhouse variety shown by the ST. GEORGE'S NURSERY CO., Hanwell, W.

Sir T. LAWRENCE, Bart., Burford, Dorking (gr., Mr. Bain), exhibited two varieties of *Azaleodendron* ×, named respectively *Jules Cluson* and *Dr. Masters*. These crosses from ordinary spotted *Rhododendrons* and *Azalea mollis* were shown at the last quinquennial exhibition at Ghent by M. PYNKERT, and were fully described, with others, in an article published in the *Gardeners' Chronicle*, June 3, 1893, p. 666. The flowers of both varieties shown at the Drill Hall exhibit the spotting obtained from the *Rhododendron*, the variety *Dr. Masters* having rosy-lilac coloured flowers, and those of *Jules Cluson* paler, being almost white, flushed with rose. We have seen no evidence at present that the plants are sufficiently good growers to become popular in gardens, Sir T. LAWRENCE also showed plants of *Pavonia intermedia kermesina* bearing very fine intensely crimson flowers.

From M. C. G. VAN TUBERGE, Haarlem, came blooms of *Galanthus Fosteri*, and spikes of flowers of *Lachenalia pendula*, variety named *Aureliana*.

A Cultural Commendation was made to W. C. WALKER, Esq., Percy Lodge, Winchmore Hill, London (gr., Mr. Geo. Cragg), who exhibited a finely grown plant of *Hippeastrum*, Walker's Crimson, which had two extra strong spikes bearing about a dozen large flowers.

P. PURNELL, Esq., The Woodlands, Streatham Hill, exhibited a group of *Narcissus* in pots, chiefly of the "trumpet"

and cup sections; also a few hardy plants in flower, among which we noticed the curiously coloured *Iris persica* (Silver Banksian Medal).

A Silver-gilt Flora Medal was deservedly awarded to Messrs. W. PAUL & Sons, Waltham Cross Nurseries, Herts, who again staged a magnificent group of *Camellias*, including flowering-plants and cut blooms of a large number of choice varieties. The group was gayer even than that shown a month ago from the same establishment.

Bryophyllum calycinum shown by Mr. W. NIELD, Horticultural College, Holmes Chapel, Cheshire, was recommended a Botanical Certificate. This curious member of *Crassulaceae* was introduced from India early in the present century. It has thick, fleshy, opposite leaves, ovate, and crenate, with one or two segments. The plant may be propagated by the leaves similarly to *Begonias*, in this case the young plants springing from the notches in the margins of the leaves. The long cupped flowers are produced in a terminal panicle, and are yellowish-red in colour. The plant is generally grown in the stove.

Orchid Committee.

Present: Harry J. Veitch, in the chair; and Messrs. J. O'Brien (Hon. Sec.), De B. Crawshaw, H. M. Pollett, H. Balantine, N. C. Cookson, H. Little, H. J. Chapman, J. F. Thorne, F. Sander, C. Winn, W. H. Young, W. H. White, W. H. Protheroe, S. Conrault, E. Ashworth, J. Jaques, E. Hill, T. W. Bond, T. B. Haywood, J. Douglas, A. H. Snee, and T. Statler.

Notwithstanding the very cold east wind blowing, there was a fine show of Orchids in flower, many of which came long distances.

Messrs. J. VEITCH & Sons, Royal Exotic Nursery, Chelsea showed a fine group, for which a Silver Banksian Medal was awarded. It was especially interesting by reason of the number of fine hybrids included, and in many cases the parents of the plants were likewise shown. Noteworthy among these novelties was a batch of crosses from *Epidendrum Endresii*, pollinated with other species of Orchids, viz., *E. Endresii*, *E. Wallisii*, *E. × Endresio-Wallisii*, and *E. × elegantulum*, all of them showing much variation. Another such subject was *Epiphenitis* × *Veitchii*, and beside it its parents, *Epidendrum radicans* and *Sophranitis grandiflora*; the same rule applied to *Cymbidium × eburneolum*; plants in bloom of *Cymbidium eburneum* and *C. Lowianum* being placed alongside.

Among remarkable hybrids was the second acquisition of *Phalenopsis* × *John Seden* (*P. Laddemanniana* × *P. amabilis*, Bl.). Two plants were flowered a few years ago, and received a First-class Certificate. The one now in flower was raised from seed sown in 1891. The handsome flower has sepals and petals of a bluish-white tint, profusely and evenly spotted with crimson; the bases of the segments, and especially of the petals, are a bright rose hue. The side-lobes of the lip are rose-coloured, spotted with red, and tinged with bronzy-yellow. The middle lobe of the same is of a yellowish-bronzy hue in the centre, and rose-coloured at the apex. Another fine new hybrid was *Cattleya × Miranda* (*amethystoglossa* × *Trianae*), with flowers of good size, and of a delicate rose colour, the tips of the petals and the front of the lip of a fine claret crimson (Award of Merit). Also in the group were the brilliant *Epidendrum × O'Brienianum* superbum, with bunches of dark blood-red flowers; a very showy collection of *Deudoriums*, with varieties of *D. Wardianum* and *D. crassinode* at the back, and pretty yellow-tinted *D. × Wiganiae*, the singular *D. × Statius*, *D. Hildebrandii* albescent, *D. × Cybele*, and the numerous fine forms of the *D. × splendidissimum grandiflorum* class in the foreground. Other plants in flower were the charming pale yellow *Laelio-Cattleya × Myra*, some interesting hybrid *Cypripediums*, *Platycalis glumacea*, *Miltonia Roezli*, *Trichoplia suavis*, varieties of *Cattleya Trianae*, &c.

Baron Sir H. SCHRODER, The Dell, Staines (gr., Mr. H. Ballantine), again showed the magnificent *Odontoglossum* crispum "Baroness Schroder," the richest in colour of any known crispum. The flowers had attained perfect form, their surface being of a rich claret-crimson, with silvery-white showing between the large and closely-set blotches. As an extraordinary exhibit, the committee recommended that a Gold Medal be awarded. Baron Schroder also showed grand spikes of his noble hybrid *Calanthe × "Baron Schroder"*, and its varieties, "superba" and "delicata;" two fine spikes of *Odontoglossum coronarium brevifolium*, the singular hybrid, *O. Cookianum*; the pale yellow *O. luteo-purpureum Amesianum*, the distinct *O. Pescatorei melanocentrum*, *O. Coradinei*, and other *Odontoglossums*, for all of which "Cultural commendation" was given.

N. C. COOKSON, Esq., Oakwood, Wyke, Northumberland (gr., Mr. Wm. Murray), showed *Dendrobium × Cybele*, Oakwood var. (*Findlayanum × nobile Burfordiense*). The peculiarity of *D. n. Burfordiense* is that it shows streaks of purple and other traces of the labellum, in the lower sepals. This characteristic was transferred to the hybrid in a marked degree. Also the handsome *Dendrobium × Astrea superba* (*luteolum × crassinode*), the original of which had been previously shown and certificated.

Sir TREVOR LAWRENCE, Bart., Burford, Dorking (gr., Mr. W. H. White), showed the handsome *Dendrobium × Clio* (*splendidissimum grandiflorum × Wardianum*), and *D. × Euterpe* (noble × *Wardianum*), both fine hybrids, showing much of the beauty of *D. Wardianum*.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Aldous), showed *Odontoglossum × Wilckeanum* Pitte, with a magnificent inflorescence, the flowers being the largest and most richly coloured of any of the forms of *O. × Wilckeanum*,

and most like the grand O × W. Queen Empress in BARON SCHROEDER's collection (First-class Certificate).

C. J. LUCAS, Esq., Warham Court, Horsham (gr., Mr. Duncan) showed *Laelio-Cattleya* × *Warnhamensis* (*cinnebarina* × ?) with flowers of L. C. *Hippolyta* class, but with the whole of the segments heavily tinged with claret colour, the yellow ground appearing at the edges and between the veining. It is a very fine hybrid. (Award of Merit).

Messrs. J. CHARLESWORTH & Co., Heaton, Bradford, showed thirty plants of the handsome new Phaius × Norman (*Sanderianus* × *tuberculosis*) raised by N. C. COOKSON, Esq., finely flowered and showing a considerable advance upon P. × *Cooksoni*, a plant of which was shown with them. The plants showed great variety in their soft and rich marking, and three were selected to go before the committee for adjudication. Of these, P. × Norman had large flowers of a delicate rosy-lilac tint, with a lighter colour on the reverse side; the lip was tinted rose and purple of various shades, and the whole was furnished with a bright yellow reticulation (First-class Certificate). The variety "rosea" had a lip somewhat darker in tint, and the other segments were of a warm rose-pink flush (First class Certificate); and the variety "aurea" had yellowish sepals and petals delicately flushed with salmon-pink (Award of Merit). With the Phaius were arranged nice examples of *Odontoglossum crispum*, O. *luteo-purpureum*, O. *Wilckeanum*, O. *cirrhosum*, *Oncidium spillopterum*, *Laelia rubescens*, *Lycaste gigantea*, *Masdevallia* × *falcata*, &c. A Bronze Banksian Medal was awarded.

T. B. HAYWOOD, Esq., Woodhatch, Reigate (gr., Mr. C. J. Salter), showed a group of *Dendrobium* × *Ainsworthi*, "Woodhatch var.," which is a fine variety with creamy-white large blossoms, having the base of the lip of a purple tint (Award of Merit); also plants of *Laelio-Cattleya* × *Haywoodi*, of the L. C. × *Hippolyta* section, with flowers of dark orange tinged with rose.

C. L. N. INGRAM, Esq., Elstead House, Gedding (gr., Mr. T. W. Bond), showed a group consisting of thirty-six finely-cultivated plants of *Dendrobium* × *splendidissimum grandiflorum*, for which a well-merited Cultural Commendation was awarded.

ELIJAH ASHWORTH, Esq., Harefield Hall, Wilmslow, Cheshire (gr., Mr. Holbrook), showed *Cattleya Trianaei* Ashworthiana, a very finely-shaped flower of a delicate peach-blossom tint, with a darker rose line on the front of the lip, reminding one of C. *Schroderi*.

Messrs. HUGH LOW & Co., Clapton, showed *Odontoglossum nebulosum pardinum splendens*, one of the largest and most handsomely-spotted forms of O. *nebulosum* yet seen (Award of Merit); also *Cattleya Trianaei* Venus, a fine white flower, with yellow centre and rose-pink front to the lip.

Mr. OTTO FRÖBEL, Zurich, sent *Spiranthes colorata maculata*, referred to in the *Gardeners' Chronicle*, Feb. 19, p. 112 (Botanical Certificate).

Mr. E. ZOLLINGER-JENNY, Wollishofen, near Zurich, sent a fine branched spike of *Odontoglossum ramosissimum superbum*, with flowers of a clear white, handsomely spotted with purple (Vote of Thanks).

L. I. MEASURES, Esq., Camberwell (gr., Mr. H. J. Chapman), showed a fine plant of the singular *Pleurothallis punctulata*, with black and silvery-white flowers of curious structure.

W. S. ELLIS, Esq., Hazelbourne, Dorking (gr., Mr. W. S. Barrell), showed *Dendrobium* × *Cybele*, Ellis's variety, with flowers larger than the original.

H. SHAW, Esq., J.P., Birch Vale (gr., Mr. J. Cliffe), showed *Odontoglossum crispum*, Heathfield var., and O. *Schillerianum*.

J. T. BENNETT-POE, Esq., Holmewood, Cheslunt (gr., Mr. Downs), showed *Epidendrum Stamfordianum*.

WALTER C. WALKER, Esq., Winchmore Hill (gr., Mr. George Cragg), sent *Acineta Humboldtii*.

Messrs. FISHER, SON & SIBRAY, Handsworth, Sheffield, showed a fine form of *Dendrobium Wardianum album*.

J. RUTHERFORD, Bearwood, Blackburn (gr., Mr. J. Lupton), showed *Odontoglossum Andersonianum* Rutherfordianum, a very distinct form of the Ruckerianum class; also a very fine, nearly unspotted variety of O. *Andersonianum*, and O. *Wilckeanum*.

E. HOCKLIFFE, Esq., Uppingham, sent *Odontoglossum Andersonianum*.

The Right Hon. Lord LEIGH (gr., Mr. H. T. Martin) sent fine flowers from his plant of *Lycaste Skinneri*, which had previously flowered with twenty-five blooms.

Mr. WM. MURRAY, The Gardens, Oakwood, Wylam-on-Tyne, showed his patent Orchid-stands, illustrated in the present issue for elevating the plants above the staging [fig. 63]. They are designed to prevent fungoid growth arising from stagnant air, which sometimes collects in inverted pots, and is detrimental to Orchids.

Fruit Committee.

Present: T. F. RIVERS, Esq., in the chair; and Messrs. Geo. Banyard, A. F. Barron, W. Poupard, O. W. Cummins, Jas. H. Veitch, T. J. Saltmarsh, A. H. Pearson, J. Wright, Alex. Dean, J. W. Bates, Jno. A. Laing, C. Herrin, Geo. Wythes, H. Balderson, F. Q. Lane, Jas. Smith, G. Reynolds, Robt. Fife, and J. Willard.

The competition amongst exhibitors of Apples and Pears has dwindled considerably, owing to the few available varieties of either. In Apples, C. P. SERGOLD, Esq., Taplow Hill (gr., Mr. Bullock), was 1st, with Cox's Orange Pippin; and T. B. HAYWOOD, Esq., Woodhatch Lodge, Reigate (gr., Mr. C. J. Salter), was 2nd, with Bees Pool, the produce of

bushes worked on the Paradise, and growing on sandy soil. Other varieties shown were Sturmer Pippin, D'Arcy Spice, Reine des Tardives, Fearn's Pippin, Reinette du Canada, and St. John's Seedling.

A dish of Pear Bergamotte d'Esperen received a 2nd prize. The fruit was taken from a pyramid growing on clayey loam overlying clay; it was shown by Mr. R. MAHER, gr., Yattendon Court, Newbury.

We are now doubtless at the end of these competitions for the season; and while, on the whole, these have doubtless been of interest to amateurs, they have not furnished anything that was not previously of common knowledge, and we do not remember that they have caused any good new variety, or one which, from the lateness of its flowering, would be likely to escape injury from May frosts, to be brought forward.

Mr. C. P. SERGOLD's gardener showed ten dishes of well-kept Apples, of dessert varieties, viz., St. John's Seedling Court of Wick, Claygate, and Hubbard's Pearmain, Baddow's, Blenheim Orange, and Cox's Orange Pippins, and Egremont Russet. An Award of a Bronze Banksian Medal was made.

Mrs. WINGFIELD, Amptill House, Herts (gr., Mr. W. J. Empson), obtained a Silver Banksian Medal for twenty dishes of Apples and a dish of Uvedale's St. Germain Pear. The fruits were in most instances clear in the skin, and bore evidence of having been well preserved.

The nice-looking Cucumber, Every Day, which has been previously shown by Mr. THOMAS, the Queen's gardener, Frogmore, obtained on this occasion a First class Certificate. The fruits were about 1½ foot long, smooth, spineless, with a short handle, and of a deep green colour; and, what is more important, fully developed.

Some bundles of excellent Asparagus, cut from permanent beds, forced by means of fermenting leaves and dung in the

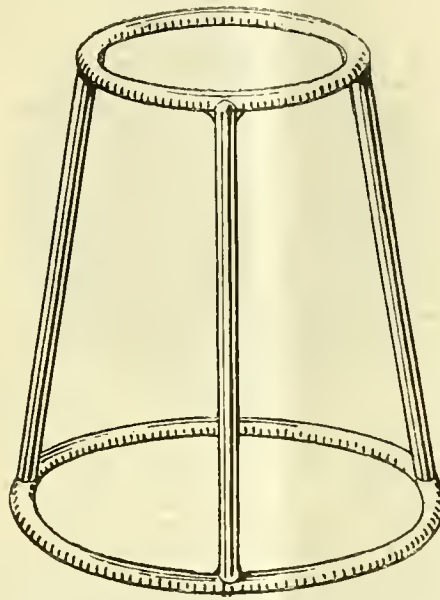


FIG. 63.—MURRAY'S PATENT ORCHID-STAND

intervening alleys, very appetising-looking, and of a pinkish-white colour, gained for Mr. G. Wythes, gr. to Earl Pease, Sion House, a Cultural Certificate. Mr. Wythes likewise showed three varieties of the Jerusalem Artichoke, viz., Vilmorin's, a dirty white skinned tuber, resembling somewhat the old Fir-cone Potato in form and the number of its eyes; Long White, which has the appearance of thickened rhizomes rather than tubers. Many of these were 8 inches in length, and 1½ inch in diameter, and with but few buds; the third was Sutton's White, a long, oval form, of even outline. He also showed fruits of Telegraph Cucumber.

Messrs. H. LANE & SONS, Great Berkhamsted, showed basketful of Prince Albert Apple, excellently kept, being plump, and high of colour; and a few of Rosemary Russet.

Good examples of Variegated Kale came from Messrs. J. VEITCH & SONS, Lant.

NOTTS HORTICULTURAL AND BOTANICAL.

MARCH 1.—The annual meeting was held on the 1st inst. in the Exchange, Nottingham. Councillor C. SMITH (Chairman of Committee) presided. The sixteenth annual report referred to visits made by members of the society and friends on July 1 to the gardens of Rufford Abbey, the residence of Lord Saville, and to Sandriogham, the residence of H.R.H. the Prince of Wales, on July 28. Both visits were greatly appreciated.

The summer show was held on July 14 and 15, in the grounds of the Arboretum, and was the finest the society had held for a number of years. A fruit meeting was held on Oct. 28, when over 300 dishes were staged. A Chrysanthemum

meeting was held on Wednesday, November 7, in the Mechanics' Lecture Hall. The numerous and representative exhibits sent in by the members raised the meeting to the rank of an exhibition. The receipts were:—Annual dinner, £6 9s.; balance from smoking concert, £1 5s. 9d.; excursions, £276 1s. 6d.; annual flower show, including special prizes, £165 1s. 5d.; members' subscriptions, £112 6s. 6d. There were losses of £1 3s. 10½d. on the dinner, and of £64 1s. 4d. on the annual show, while there was a profit of £38 18s. on the excursions. The year closed with a balance in hand of 19s. 3d., a balance in the bank on general account of £25 17s. 1d., and a reserve of £20 in the bank on excursion account.

The Duke Portland was re-elected president, and the hon. treasurer and auditor were also re-elected. Mr. C. J. Mee was subsequently elected hon. secretary in succession to Mr. Stewart, who resigned after eight years excellent service.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

MARCH 1.—A crowded meeting of the Association was held in Donall's Rooms, George Street, on the above date. MATTHEW LORO, Esq., the president of the association in the chair. The minutes of the last meeting were read by the secretary, and several new members proposed. The president then called upon Mr. IRELAND of Broughty Ferry, to read his paper on Orchids, introducing him as a very successful cultivator of these plants. The lecturer exhibited some fifty illustrations of beautiful Orchids, mostly of his own growing, as well as photographs. These showed, as well as his running commentary on the choicest species and varieties, and many useful cultural hints, his thorough acquaintance with his subject, and gave great pleasure to the audience. The more popular and striking species were touched upon, and the lecturer's historical and cultural notes were specially valuable.

Next came the crossing of Orchids for obtaining varieties or hybrids, and reference was made to the skill and patience required by those who engage in this kind of work.

On the motion of Mr. M. DUNN, a hearty vote of thanks was passed to Mr. IRELAND; and the president announced that the next meeting would be a social gathering to celebrate the coming of age of the Scottish Horticultural Association.

ISLE OF WIGHT.

MARCH 5.—The monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Newport on the above date, Dr. J. Groves, B.A., J.P., in the chair. A large number of members were present to hear a paper read on the "Cultivation of Asparagus," by Mr. J. H. PERKIN, The Gardens, Los Altos, Sandown, who was himself unable to be present, and the paper was read by the Chairman.

A collection of Cyclamen was staged by Mr. B. PARSONS. It was decided to develop the April meeting into a show of spring flowers, and that it should be held at Shanklin N. H.

CHESTER PAXTON.

MARCH 5.—At a meeting of this society held in the Grosvenor Museum on the above date, the Hon. Sec., Mr. G. P. MILN, gave an address on "The Life and Work of the late Sir Joseph Paxton, M.P." At the outset, Mr. Miln made mention of the fact that there had never been any biography published of this "Prince of Gardeners," and it was not without some difficulty that a complete life history of him had been obtained. [See *Gardeners' Chronicle*, June 17, 1895.] The lecturer described Sir Joseph as one of the great men of this century, and traced his career from the time he became an apprentice-gardener to the period when he was returned Member of Parliament for Coventry. His great work at Chatsworth, his valuable contributions to botanical and horticultural literature, are well known to gardeners generally; but the crowning effort of his life was undoubtedly the designing of the building in Hyde Park, in which was held the great Industrial Exhibition of 1851, and which was afterwards reconstructed at Sydenham. For this he received the honour of knighthood, a well-earned distinction. The later years of his life were devoted to commercial enterprises of various kinds, the development of railways, &c.; but he never lost that love of gardening which he had so studiously cultivated in early life.

On the initiative of the president (Mr. N. F. Barnes), Mr. Miln was heartily thanked for the trouble he had taken in getting together so many interesting facts concerning the life of Paxton, and a hope was expressed that these would be published in pamphlet form.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

MARCH 7.—One of the largest attendances of member during the present season assembled on the above date in the club room under the presidency of Mr. C. B. STEVENS, to hear a paper on "The Cultivation of a few useful Flowering Plants for Stove and Warm Greenhouse," by Mr. Townsend, gardener to Sir WM. FAARAR, Sandhurst. The following subjects were touched upon, and short but ample cultural

instructions were given of each variety: *Achimenes*, *Begonia maculata*, *B. Ingrami*, *B. fuchsoides*, *B. insignis*, *B. coralina*, *Justicia speciosa*, *J. flavicoma*, *Heterocentrum roseum*, *Centradenia rosea*, *Centropogon Lucyaus*, *Clerodendron splendens*, *C. Balfourii*, *Scutellaria moccianiana*, *S. pulchra*, *Eranthemum pulchellum*, *Thysanotus rutilans*, *Dendrobium nobile*, *Anthurium Scherzerianum*, *Phajus grandifolius*, *Zygopetalum Mackayii*, *Libonia floribunda*, *Habrothamnus Newellii*, *Streptosolen Jamesonii*, *Salvia Pitcheri*, *Diplacus hybridus splendens*, *Torenia Fournierii*, *Esacus affinis*.

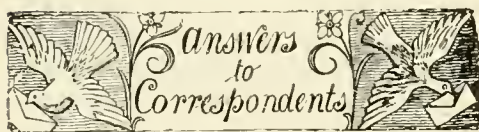
A lengthy discussion took place, which drifted chiefly to the advantage or disadvantage of pruning *Dendrobium nobile*. An interesting collection of cut blooms was exhibited by the lecturer, the most noticeable being *Centradenia rosea*, *Clerodendron Balfourii*, *Phajus grandifolius*, *Zygopetalum Mackayii*, *Habrothamnus Newellii*, *Streptosolen Jamesonii*, and the various *Begonias* named above.

CATALOGUES RECEIVED.

- R. H. BATH, LTD., The Floral Farms, Wisbech—Carnations, Pansies, Violas, Begonias, Cannas, Dahlias, &c.
 F. H. HORSFORD, Charlotte, Vermont, U.S.A.—Hardy Miscellaneous Plants.
 KENT & BRYDON, Darlington—Agricultural Seeds.
 RIVOIRE & FILS, 16, Rue d'Algerie, Lyons, France—Trade List of New Plants.
 FRED. W. KELSEY, 150, Broadway, New York—Trees and Shrubs, Hardy Vines, Roses, Fruit-trees, &c.
 W. P. LAIRD & SINCLAIR, Dundee and Cupar, Fife—Farm Seeds.
 TOOGOOD & SONS, Southampton—Farm Seeds.
 COOPER, TABER & CO., LTD., 90 and 92, Southwark Street, London, S.E., Wholesale List of Farm Seeds.
 HOGG & ROBERTSON, 22, Mary Street, Dublin, Agricultural Seeds.
 HARRISON & SONS, Leicester—Agricultural Seeds.
 LOUIS VIEWEG, Quedlinburg, Germany—Seeds, Orchids, Succulents, Clematis, Passifloras, Hardy Plants, &c.
 PINEHURST NURSERIES, North Carolina, U.S.A.—Trees, Shrubs, and Herbaceous Plants.
 V. N. GAUNTLET, Green Lane Nursery, Redruth—Hardy Bamboos, Hardy Palms, Japanese Maples, Himalayan Rhododendrons, &c.
 HERD BROS., 47, King Street, Penrith—Agricultural Seeds.
 PETER LAMBERT, Treves, Germany—New Roses of own raising, White Maman Cochet, Red Maréchal Niel, and others.
 THOS. S. WADE, Hale Farm Nurseries, Tottenham—(1) Hardy Perennials; (2) Hardy Florists' Flowers.
 JAMES BACKHOUSE & SONS, York—Alpine Plants, Hardy Perennials, and Florists' Flowers.

GARDENING APPOINTMENTS.

- MR. T. COLLINGS, for four years foreman in The Gardens, Swallowfield Park, as gardener to Mr. Fairfax Wade, Ullme Park, Twyford, Berkshire.
 MR. ROBERT MINARD, for the past six years Head Gardener to T. R. SYMONS, Esq., of Mynde Park, Herefordshire, as Head Gardener to JAS. RANKIN, Esq., M.P., at Bryngwyn, Herefordshire.



BOOKS: A. R. *The Nursery Book*, by L. H. Bailey, published by the Rural Publishing Co., New York; see also *Gardeners' Chronicle* for 1897 for a series of exhaustive articles on the subject of plant-propagation.—E. K. *The Orchid Manual*, by B. S. Williams, sold by the author at the Victoria and Paradise Nurseries, Upper Holloway.

FRAMES FOR MAKING TOPIARY WORK: T. G. We are not aware that there are professional makers of frames for this kind of garden "adornment," but any worker in wire would be able to fabricate what you desire. If this note should meet the eye of our Dutch friends who indulge in these things, they may kindly proffer the desired information.

GARDENIAS: *Grower*. The quotation 6s. was actually paid by a dealer in the Central Avenue last week.

GRUB ON APPLE LEAVES: B. J. Hughes. Hand-picking when the grubs show. You do not say what sort of grubs. Please send a sample when properly developed, and we can then answer your question fully. Petroleum emulsion, tobacco water, soft soapy water, Quassia water, are all good in making the leaves distasteful to the feeding grubs.

LOAM: G. S. K. The loam is of a heavy clayey nature, but on being rendered porous it would not be unsuited to the growth of fruit trees of all kinds, Melons, Pines, for soiling Mush-

room beds, for Roses in pots or beds, Conifers, &c. To render it porous employ for potted plants either sand or leaf mould; and out of doors, charred earth, sand, ashes, road grit, &c. There were no insects found in it.

LYCASTE: *Veritas*. The species named usually flowers in summer and autumn. It should be grown in the intermediate-house.

MARKET GARDENING IN CORNWALL: B. For early crops, say of Strawberries, Gooseberries, and small fruits generally, Broccoli, Cauliflower, Potatoes, &c., the south-eastern parts of the county should be selected, these being warm and less swept by the Atlantic gales than the western and north-western parts. The districts served by the Great Western Railway, and therefore in connection with the great midland and northern towns, would be the best. Rent of good land is not low, and we should suppose that land let for gardening purposes would be more highly rented than farm land. We are unable to answer your inquiries regarding the chances of a short term of employment on an established place. Why not advertise your wants in these pages. Bulb (*Narcissus*) growing is the staple industry of the Scilly islanders, and brings in better returns than the cultivation of the Potato, once their sole industry but now almost relinquished.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—J. R. *Cœlogyne graminifolia*.—J. B. Your newly-imported *Dendrobium nobile* is a very fine variety. Its odour as well as its colour is different from the old type of *D. nobile*.—J. J. *Hebeclinium atrorubens*; 2, *Cupressus funebris*; 3, *Bilbergia nutans*; 4, *Cyperus laxus*; 5, *Ophiopogon Jaburan variegata*; 6, *Begonia corallina*.—J. W. 1, *Berberis Bealei*; 2, *Berberis Darwinii*; 3, *Pernettya mucronata*, or var.; 4, *Gaultheria Shallon*; 5, *Hippeastrum (Ameryllis) Johnsoni* var.; 6, *Fuchsia microphylla*.—A. M. D. 1, *Oncidium pubes*; 2, *Oncidium pulvinatum*. The Tomato is affected by disease which commonly affects it when much forced.—J. B., *Chippendale*. 1 and 3, are varieties of *Odontoglossum Andersonianum* of that class commonly called *O. Ruckertianum*; 2, *Odontoglossum Hallii*. All are remarkably fine, and 1 and 3 very distinct.—G. Sleep. *Acacia dealbata*. The propagation is by means of seeds and cuttings of half-ripe wood. The latter put in under a bell glass in sandy peat covered with clean sand and kept in a greenhouse, shading the pot when the sun shines. Indigenous to Tasmania.—T. F. Next week.—H. P. Next week.—H. T. C. 1, *Clivia miniata*; 2, arrived too withered for naming; 3, *Cocos Weddelliana*; 4, a variety of *Selaginella martensii*; 5, *Aglaonema simplex*; 6, *Cordyline australis*, var. *N. E. B.*

NARCISSUS HYBRIDISATION: *Quiz*. See Cassell's *Popular Gardening*, Burbidge's *Cultivated Plants*, *Encyclopedia of Horticulture*, by Nicholson, under "Hybridisation;" and *Gardeners' Chronicle*, March 12, 1892, p. 331.

RHODODENDRONS: W. H. B. Grafting may be done in late summer by employing ripe wood of the current season, and stocks of *R. ponticum* for hardy varieties, or seedlings of Sikkim or Java species that may be obtained from seed for the tender species. These should have been one year in pots at the least, and be as large as a goosequill at the ground level, and should be headed down, a leaf or two being left at the top; below which point the graft is put on by any of the various methods. Sometimes cleft grafting is employed, the graft being then inserted at the apex of the cut down stem; leaves on opposite sides of the stem being retained in this case likewise. The grafts should be tied in, and afterwards coated with grafting-wax, and the plants put into cool glass case or frame within a glasshouse. The same kind of stocks may be used for inarching Rhododendrons, say in June, both in the case of hardy species out-of-doors or others under glass; it is a safe and easy method where only a few plants are required. In the case of the warm-house varieties, a temperature intermediate between that of the stove and the greenhouse is best for the grafts. As it is not desirable in the case of grafts to encourage growth after August, at which time the grafts will be taken, the stocks should be removed to more airy quarters—not all of them at one time, but such as show on close examination that an union has taken place—and gradually inured to the outer air in the case of hardy species, or to the air of the intermediate house in

the case of the others. The hardy ones should be wintered in glass frames, or under some rough sort of protection, as bamboo shading, pea or bean sticks, and the pots protected from being broken by frost by sinking them in the soil or in coal-ashes. We are unable to inform you if the writer of the articles on "Plant Propagation" intends to publish them in book form.

ROSE LEAF: R. S. A chill from overhead syringing. No fungus present.

SNOWBERRY BUSH (*SYMPHORICARPUS RACEMOSUS*) AND FARM STOCK: K. S. J. W. The berries are not poisonous. Wild animals are discriminating, and avoid them, but tame ones seem to have their instincts blunted by misuse.

SOME METHODS OF PROPAGATING ROSES: *Elsie*. The method of striking the cuttings in bottles of water is not a very certain one, or one that will result if successful in obtaining healthy plants. If only a few plants are wanted, and the mother plants are in flowerpots, sink these in the soil after putting a handful of soot or coal ashes at the bottom of the hole as a deterrent to worms, that might otherwise get into the pots, and layer the upper 8 inches of each stout shoot of last season's growth, two inches deep in the ordinary soil, or into a potful of soil also sunk in the ground, fastening each shoot with a wooden hook. If done in April the layers will be rooted in July, and in early September they may be detached from the parents, and planted elsewhere or potted. It is better than taking cuttings where but few plants are looked for, and is but little trouble. Cuttings of ripe wood may still be put in, in the open border, but the best time is October. The cuttings should be made from ripe, stout shoots, one foot in length, taken off with a "heel," a slice of the previous year's wood, and put into the soil to two-thirds of their length, and made firm by pressure. Cuttings of half-ripened shoots also furnished with a "heel" and with leaves too, which however must be slightly reduced in size, strike well in 3-inch pots filled with sandy soil, placed on, or plunged in a mild hotbed in early July. They must be kept moderately moist, and the frame very close always, and shaded from bright sunshine. In three weeks or a month if damping off has not occurred, the greater number will be rooted. If damping appears likely to occur, air must be given for a quarter of an hour about 10 A.M. on alternate days.

STOPPING CERTAIN VARS. OF CHRYSANTHEMUMS: *Grower, Cheshire*. We think that you mean "taking the bud." You should obtain a manual on cultivating the plant, or take your inquiry to some one who makes a specialty of Chrysanthemums.

TENANCY OF LAND: B. E. C. Six months' notice on either side, the tenancy terminating on the day upon which it was entered.

WARTY EXCRESCENCE ON VINE STEM: C. Price. The excrescences on the Vine stem do not constitute a disease, being simply the abnormal development of latent buds. Such buds in Vines are most abundant in the axils of weak leaves and leaf-scales formed near the base of the stem when the plant is quite young, and may remain latent for a long period of years, eventually forming rugged excrescences, sometimes of a very large size. G. M.

WOODLICE: *Anxious*. We fear you never read your *Gardeners' Chronicle*. Consult the issue for February 12 last for antidotes against these creatures.

COMMUNICATIONS RECEIVED.—National Rose Society.—W. J. —W. L. M.—J. G. B.—Sutton & Sons—C. W. H.—T. B.—A. G.—with thanks.—W. W.—Another Old Subscriber, too late for this week.—L. H. R.—F. & L., Olmsted, letter follows.—J. H. M.—J. Burt, Davy, California.—W. W.—W. D.—Expert.—H. M.—G. H.—G. M.—W. J. B.—W. H. P.—Thos. Faber.—H. P.—J. H.—F. A. W.

PHOTOGRAPHS, SPECIMENS, ETC., RECEIVED.—D. C.

CONTINUED LARGE INCREASE in the CIRCULATION of the "GARDENERS' CHRONICLE."

Important to Advertisers.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED,
and that it continues to increase weekly.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES of GARDENERS and GARDEN-LOVERS at home, that it has a specially large FOREIGN and COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.

(For Markets and Weather, see p. xv.)

THE

Gardeners' Chronicle.

SATURDAY, MARCH 19, 1898.

A BOTANIST WITH THE ECLIPSE EXPEDITION.

TO witness the total eclipse of the sun on January 22, 1898, a few observers journeyed from America and Japan, and many from nearer centres, to the neighbourhood of the village Jeur, in the Deccan, India, because it stands near the centre of the twenty-five miles wide line of totality, and two minutes four seconds would be available to record on photographic plates the spectroscopic lines which tell of certain elements in the vapours that constitute the corona, visible only during a total eclipse. The astronomers were furnished with the best appliances known, details of which need not here be given.

On the day in question, about noon, the moon began to steal gradually over the face of the sun, light began to fade, Leguminosæ to fold up their leaves as their manner is at fall of evening, and when the black shadow of the moon came out of the west like a swift moving cloud, the darkness became that of a clear night; the breeze fell, a few stars were visible, all nature hushed, and one felt that "All the air a solemn stillness holds." The manipulation of apparatus to the measured beat of a pendulum left time for only a hasty glance at the brilliant corona; with that, and the results, astronomers must be left to deal.

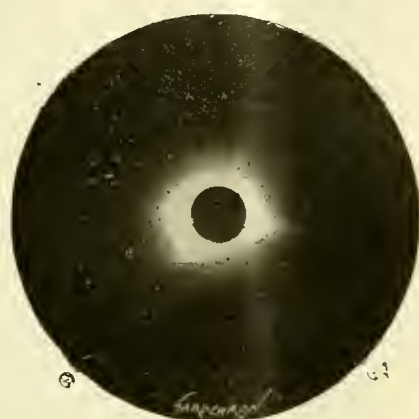
The soil of the district is disintegrated trap-rock, in some places only a few inches deep, in other places several feet in depth, of a fine black loam, excessively encumbered with large roundish stones, neither water-worn nor scratched, evidently hard nodules of the rock from which the soil is formed. Rain in this district is confined to the months including June and September, and averages 25 inches yearly. The daily range of temperature during January in the open, was from 45° F. to 145° F., and in the shade from 50° F. to 90° F. Under such conditions luxurious vegetation could not be expected. In the fields Sorghum was the principal crop, and the people were awaiting its ripening with anxious eyes. Linseed growing a foot high, as its manner is in India, was frequent, and *Carthamus tinctorius*, the source of Safflower and a useful oil, showed its yellow flowers and prickly foliage in every field. Irrigated Wheat, Melons, Onions, and several kinds of Beans were to be seen near wells.

Of the natural vegetation the most prominent features were thorny *Acacias*, *Prosopis spicigera*, *Dichrostachys cinerea*, *Cassia auriculata*, *Crotalaria retusa*, and *Cardiospermum Halicacabum*. The district had no crops in the season 1896—1897, but the people had been relieved to some extent by Government works, and food supplies brought from other countries by the Famine Relief Organisation. At the time of our visit fodder was abundant, but grain was scarce and dear, and many people were subsisting by the aid of the seed of *Cyanotis axillaris*, and of *Indigofera linifolia*, *I. cordifolia*,

I. glandulosa, and *Panicum Isachne*, which grow wild in profusion, and appear to thrive well when rainfall is scanty.

In all, 130 species of plants were collected, including 26 Gramineæ, 27 Leguminosæ, 14 Compositæ, 9 Acanthaceæ, 5 Asclepiadaceæ, 5 Euphorbiaceæ, 5 Malvaceæ, 5 Cucurbitaceæ, 5 Convolvulaceæ, 2 Solanaceæ, 4 Labiatæ, 2 Urticaceæ, 2 Capparidaceæ, the remainder being represented by one or two species in a Natural Order.

Of the Gramineæ, the most frequent one, *Aristida setacea*, was in ripe seed, and the manner in which this species distributes its seeds is very interesting; its three-branched awns twist together in such a manner that a perfect sphere is formed by their extended points, and the balls roll hither and thither in every breeze. One would appear at the door of the tent like a shy stranger, uncertain whether to advance or retreat; a puff would drive it in a foot, another would send it out again, a third would make it roll straight to one's feet. Another grass of interest is a species of *Isachne*, undescribed and remarkable for its habit of setting loose its entire



Sent by an old correspondent.

FIG. 64.—ECLIPSE OF THE SUN ON JANUARY 22, 1898, AS SEEN AT JEUR, IN THE DECCAN.

inflorescence, a large open panicle of most elegant form, which is rolled about by the wind till it is caught in some bush. As this species has an inflorescence larger than any other known, and was found while preparing to observe the eclipse, the name *Isachne obscurans* is proposed for it in the attached description.* *G. Marshall Woodrow, Professor of Botany, College of Science, Poona, India.*

NEW OR NOTEWORTHY PLANTS.

CATTLEYA TRIANÆI VAR. ALBIDA.

A BEAUTIFUL white form of *Cattleya labiata* Trianæi named as above, has flowered with Captain G. W. Law-Schofield, New-Hall-Hey, who has kindly sent a flower. The sepals and petals are white, the latter

* *Isachne obscurans*, Woodrow, sp. nov.

Stem short, ascending, annual.

Leaves 3½ to 5 inches by ½ inch at widest, lanceolate hispid, margins thickened, ciliate. Sheath shorter than the leaf, hispid.

Panicle attaining 15 by 12 inches, pyramidal, lax, ultimate branchlets pendulous, few flowered; peduncle equal to height of panicle.

Spikelets ½ inch. G.I. ¾", 7-hispid-nerved; G.II. ¾", 7-nerved, broader than I., and with a black gland at base; G.III., 7-nerved, slightly shorter and broader, but otherwise as I. and II. Pale, half as long as glume, 2-dentate; G.IV., and pale ¾", 5-nerved, smooth, crustaceous.

The whole inflorescence breaks off and is driven about by the wind. Vernacular name, *Tan Sawa*, grain used for fast-day food; cooked like rice. *G. M. W.* [In the opinion of Dr. Stapf this is a true *Panicum*. Ed.]

broad and finely crimped at the margin. The lip is also white, with chrome-yellow lines radiating from the base, and the front lobe is of the delicate bluish-pink hue seen in the flowers of some varieties of *Heliotrope*. White varieties of *C. Trianæi* are rare, and always beautiful, and its appearance in an amateur's collection is looked upon as a very desirable event. *James O'Brien.*

CIRSIIUM CANDIDISSIMUM, Dammer.*

This new annual *Cirsium* was found by Mr. Siehe of Mersina, in the mountains of Cappadocia. It attains a height of 3½ metres. The large, sessile, decurrent leaves are about 16 ins. long, 8 to 10 ins. broad, sharply toothed, undulated, and as the whole plant bright silvery-white. The branched inflorescence bears rose-coloured heads of about 1 inch in diameter. It is a very ornamental plant, to be grown as a specimen in leamy soil. *U. D.*

ORCHID NOTES AND GLEANINGS.

DENDROBIUM NOBILE.

ONE of the finest examples of this plant I have ever seen was noticed recently in the gardens of Mrs. Knowles, Moor Head, Shipley, Yorkshire (gr., Mr. Moorby). The above specimen was in an ordinary teak basket, measuring 16 inches square, and it bore nearly 1000 blooms, on seventy-five growths. There were five such specimens carrying altogether upwards of 3000 blooms, which is a great testimony to the skill and care taken by Mr. Moorby, the gardener.

SACCOLABIUM BELLINUM.

This handsome and richly-coloured species, which was discovered by Mr. Boxall in Burmah in 1873, and sent to Messrs. Low, ranks highest in point of floral beauty over any of the four or five species of its section, whose smallest, but still pretty, representative is *S. calceolare*. A very beautiful example of it is sent by Mr. William Gould, of Rose Bank, Hayfield, near Stockport. The sepals and petals are bright yellow, so densely spotted with purplish-brown that only a slight reticulation of the yellow appears. The pouched base of the lip is white, spotted with bright purple and yellow at the base, the downy, two-lobed front being white, with a yellow blotch bearing some purple spots in the centre. It is a very quaint and attractive species. *J. O'B.*

VANDA ROXBURGHII.

Mr. P. Lancaster gives, in the last number of *Indian Gardening*, a detailed comparative account of the variations, thirty-nine in all, that he has met with in this species.

FLOWERING OF PHALÆNOPSIS SCHILLERIANA.

M. J. C. de Lange, of Rotterdam, has a plant of *Phalænopsis Schilleriana* imported last year, and now bearing a large branching raceme covered with fine flowers. Five or six other specimens have some concluded, others commenced blooming here, where they are considered a speciality.

DIDYRIS MACULATA.

This small genus of terrestrial Orchids is an interesting one by reason of its peculiar flowers. The flower-spikes generally grow here to about 9 inches high—but in their native habitat of Australia, they are said to grow as high as two feet. Each spike bears several flowers near to the apex; these are yellow, spotted with brownish-purple spots. The erect lateral sepals are spreading and wing-like, and give to the flower an insect-like appearance. The leaves are long and narrow, and die away during the summer, but fresh ones appear above ground in March. We grow them upon a shelf near the glass at the cool

* *Cirsium candidissimum*, Dammer, nov. spec.—Annuum, caule simpliciter ad 3–5 m. alto; foliis sessilibus lanceolatis acutis undulatis runcinato-serratis, decurrentibus ad 49 cm. long., 20–25 cm. lat.; inflorescentia racemosa; capitulis 2½–3 cm. diam.; floribus roseis. Tota planta nitide argentea. Crescit in montibus Cappadociae Asiae Minoris ubi legit cl. W. Siehe. *U. Dammer.*

end of the intermediate Orchid-house. This species flowered at Kew in 1825, and is figured in the *Bot. Mag.*, t. 3156. *R. L. H., Edinburgh.*

ORCHID PORTRAITS.

The following are the Orchids figured in the last issued part of M. Cogniaux's useful *Dictionnaire Iconographique des Orchidées*:—

- AERIDES CRASSIFOLIUM*, *Aerides*, t. 1.
CATTLEYA DOWIANA VAR. *AUREA ALBA*, *Cattleya*, t. 2 c.
CATTLEYA FOWLERI, Hort. Sander, *Cattleya* hybr., pl. 3.
CYPRIPEDIUM BELLATULUM VAR. *ALSUM*, O'Brien, *Cypripedium*, t. 9 a.
DENDROBIUM FORMOSUM, *Dendrobium*, t. 8.
EPIDENDRUM RADIATUM, *Epidendrum*, t. 5.
LELIA CRISPILABIA, *Laelia*, t. 13.
ODONTOGLOSSUM GRANDE, *Odontoglossum*, t. 13.
ODONTOGLOSSUM KRAMERI, *Odontoglossum*, t. 14.
ODONTOGLOSSUM ALBERTIANUM X *JULES IIYE*, *Odontoglossum* hybrid, t. 5.
ONCIDIUM RHAMATOCHEILUM X, *Oncidium* hybrid, pl. 1.
VANDA SUAVIS VAR. *RAMBONNETIANA*, Cogniaux, t. 4 a.
VANDA CERULEA VAR. *PEETERSIANA*, Cogniaux, *Vanda*, pl. 5 a.

THE CINCHONA IN INDIA.*

My remarks this evening on the Cinchona industry in India will be chiefly confined to my own experience in British Sikkim, where I held executive charge of the Bengal Government plantations from the year 1865, when they consisted of a quarter of an acre only, till seven months ago, when I retired from active service. For the last twenty years of my service I also had charge of the factory which was started at the plantations for the extraction of the Cinchona products. So I shall have something to say on the manufacture as well as the culture of the Cinchona.

Quinine is principally got from the bark of trees and shrubs belonging to the genus *Cinchona*. Indeed, till about twenty-seven years ago it was hardly known that it was obtainable from any other genus; but it was then ascertained that the bark of an allied genus, *Remijia*, also yielded it, although in smaller proportion. In 1880, and for several subsequent years, when Cinchona bark was scarce and dear, and quinine selling at famine prices, *Remijia*, or *Cuprea* bark, as it was commercially called, was imported from S. America for the European quinine factories in very large quantities; but later on, when the markets became stocked to overflowing with the rich cultivated Cinchona barks of India, Ceylon, Java, S. America, and other countries, prices fell, and the importation of *Cuprea* bark became unprofitable, and, consequently, ceased. The price of quinine is now so low that it would hardly pay the manufacturers to work up *Cuprea* bark, with its small proportion of alkaloids, even if they got it for nothing; for the expensive manipulation of a large quantity of bark, to get only a little low-priced quinine cannot be a profitable operation. Owing to over-production, the price of both Cinchona bark and sulphate of quinine has fallen so low, that the planters get actually less for the bark than it costs them to grow and market it, whilst the quinine-makers can hardly have fared much better; but the fever-stricken millions of the malarious parts of India and other hot countries reap the benefit; and to benefit them, rather than either planter or manufacturer, was the avowed object of our Government in introducing the Cinchonas to India and other countries. The results have exceeded the most sanguine expectations, for the introduction has been the means of bringing the price of quinine so low as to place it within easy reach of the very poorest. It is one of the few medicines of foreign manufacture that the natives of the East, almost without exception, implicitly believe in, and their confidence in it is likely to continue whilst quinine remains so cheap that there is but little temptation to adulterate it. Many substitutes have been from time to time put on the market, but not one has stood the trial test, and quinine is likely to remain, as it so long has been, the only safe specific for malarial fevers.

FORMATION OF PLANTATIONS.

First, then, concerning the formation of plantations. The planter in the East has no convenient nurseryman to indent on for his plants as his brother at home has, so must raise his own, and, in fact, do everything for himself, from the making of bricks to the building of factories and fixing machinery. In Sikkim there were, practically, but two methods of raising plants practised, viz., by seed and by cuttings. In the earlier years of the enterprise seed was not obtainable, and plants had to be raised from cuttings, which was done in the ordinary way. There were three main species to deal with:—*Succirubra*, or Red-bark; *Officialis*, or Crown-bark; and *Calisaya* var. *Ledgeriana*, or Yellow-bark. Usually 95 to 100 per cent. of the *Succirubra* cuttings

rooted without any trouble, but *Officialis* was not so accommodating, although not very troublesome, and *Ledgeriana* was almost a complete failure, for of many and many a batch of it not a single cutting rooted, and seldom more than 5 to 10 per cent.

There was nothing peculiar either in the way the seedlings were raised. The seed was sown in long, narrow, terraced beds, protected by low thatched roofs from rain and sun, but open at the sides for free admission of air and light. The seedlings were kept in the same sort of protected beds, with several transplantings, as they grew and required more room, till 6 or 9 inches high, when advantage was taken of a spell of dull weather to remove the thatch and get them inured to the weather previous to planting out in the plantation. The sites selected for plantations were on the steep mountain slopes, at elevations lying between 1,000 and 5,000 feet, flatish ground being avoided, as Cinchonas cannot long endure stagnant water at their roots; and artificial drainage, however elaborate, does not do much good with a yearly rainfall of 120 to 250 inches. On the selected sites the jungle, usually consisting of a mixture of trees, bamboos, and shrubs, is cut close to the ground, and great care taken to leave nothing uncut to ensure everything dying and drying together, otherwise there might be an imperfect burn which would entail extra work in the final clearing. The cutting is best done in December, after the dry season has fairly set in, and the burning in the end of March, when the weather is hot and dry. After the ground is cleared, roads have to be traced and made, and pegs put down in straight rows at the distance apart it is proposed to plant, usually 4' to 6 feet each way. Then pits of about 2 feet across and nearly as much in depth are dug out, and afterwards filled in with the same soil mixed with any convenient decayed vegetable-matter, and on those little mounds the plants are firmly planted, one at each peg, after the soil has been well saturated with rain, and the sky is overcast. At the time of planting, the seedlings are usually from twelve to fifteen months old, counting from date of the sowing. For three or four years the ground between the plants has to be kept fairly free of weeds, and occasionally dug over. Afterwards but little cultivation is necessary, as the plants will be covering the ground and able to take care of themselves.

RED BARK.

When the first plants were large enough to yield bark suitable for chemical analysis, it was found that the Red Bark, whether from seed or cuttings was fairly uniform in quality and of the typical character, i.e., rich in the inferior alkaloids, cinchonidine, and cinchonine, but rather poor in quinine. So it was only a question of expediency whether the plants were raised from seed or cuttings, the result in alkaloids being the same. It is not a good bark for quinine making, but is perhaps the most useful to the ordinary druggist for his tonics and other preparations. The crown bark was also uniform in quality and true to type however raised. It is one of the very best barks for the manufacture of sulphate of quinine, as it is rich in quinine, and comparatively poor in the inferior alkaloids. It thrives to perfection in Travancore and other parts of southern India, but is rather a failure everywhere in the more northern Himalayan regions. Its stem bark will yield from 3 to 6 per cent. of its weight of sulphate of quinine.

YELLOW BARK.

The yellow bark behaved quite differently. The cultivated plants, of course, yielded bark of exactly the same composition as the parents, but the seedlings differed in the most perplexing way, both from their parents and from each other. The better sorts yielded from 8 to 10 and even 16 per cent. of sulphate of quinine, but the inferior sorts, which were quite as numerous, or perhaps more so, less than two. To make matters worse, the good sorts are quite indistinguishable from most of the bad till the trees grow up and flower, and not always then even.

LEDGER BARK.

The original seeds, from the Andes, yielded just as mixed a progeny as the Indian grown did in later years. They were collected in Bolivia for Mr. Ledger by his half-caste servant, who was afterwards killed for having procured them for export, and thus destroyed the monopoly of so valuable a product to its native country. These seeds were first offered for sale by Mr. Ledger to the India Office, who refused them, not knowing that they were of any special value, or that they differed from varieties of *Calisaya* already in India. Ultimately they were divided between a Madras private planter, for his plantation on the Nilgiris, and the Dutch Government, for their plantations in Java. Part of the planter's share was afterwards exchanged with the Madras Government for other sorts of Cinchona seed, and, through an old friend, I got a very small packet, from which we raised 800 plants. These were the parents of most of the Ledger plants since grown in India and Ceylon, for the species did not thrive on the Nilgiris, but speedily died out, and the Dutch were careful to reserve the Java-grown seeds of the better varieties for their own use for many years. But till the first-grown bark was analysed, neither the Dutch nor the English had any idea of the value of the prize they possessed, and till the trees flowered the species even was uncertain. The first flowering specimens were submitted to the late John Eliot Howard, the famous London manufacturer of the purest sulphate of quinine ever put on the market. Mr. Howard had made a special study of the genus Cinchona, and published extensively on both its botany and chemistry, and was for many years a trusted adviser of Government

on the introduction of the Cinchonas to India, in which he took the keenest interest. So, altogether, he was in the best position to determine the species. He pronounced it to be a variety of *Calisaya*, and named it *Cinchona Calisaya* var. *Ledgeriana*. A few years later Moens, the superintendent of the Java plantations, who was a most excellent analytical chemist, but made no pretence to any knowledge of botany, raised it to specific rank under the name *Ledgeriana*; and Trimen, of Ceylon, agreed with him.

But there can be no doubt, I think, that Howard was right, and that his name ought to stand. At any rate, the Government of Bengal adhere to it. It is a most variable plant in foliage and habit of growth, as well as in coloration of the flowers, which vary from pure white to bright pink. After the general flowering of the trees, chemical analyses showed that those with white, nodding flowers, and small seed-capsules, were rich in quinine, whilst those with pinkish flowers, however slightly tinged, or with straight flower-stalks or large seed-capsules, were poor; but as there is rarely a rule without an exception, it turned out that the very richest of all in Java had pink flowers. But with this notable exception, so far as I know, the rule holds good that the white-flowered varieties are rich in quinine, and the coloured poor. For instance, a mixed sample of bark collected under my own personal supervision from twenty trees bearing white flowers, but differing more or less from each other in foliage and habit of growth, yielded 8 per cent. of crystallised sulphate of quinine; whilst a corresponding sample, collected at the same time and place from twenty trees, with flowers tinged pink, yielded but 2.93 per cent., or nearly two-thirds less; so the formation of plantations, consisting of the rich varieties only, became a matter of the first importance, for it costs no more to grow a rich sort than it did a poor, and the yield of quinine would be more than doubled. But to do this with absolute certainty, some plan of artificial propagation was necessary, as the seedlings often came untrue to type, and sometimes were a very mixed and inferior lot indeed. Attempts at propagation by cuttings had ended in failure everywhere, and layering was a slow and unsatisfactory process. The other obvious plan was grafting, but that in the ordinary way was slow and expensive, as it had to be done under glass-roofs; so in the end, in Sikkim, we had to do the best possible with selected seed, and give up artificial propagation, much to our regret. But in Java, where the climate and soil are both more favourable to Cinchona growth, plants grafted under glass, and afterwards planted out in the open, made good growth, and yielded profitable returns on the expenditure.

GRAFTING.

A good many years ago, a private planter from Java, a Mr. Weinschenk, told me of a discovery he had made in open-air grafting, by which, according to his own account, he got excellent results. In fact, he claimed by it to have almost no failures, and very little expense. But to this I cannot further testify than that I tried his plan on a small scale, and under unfavourable circumstances, but with results that inclined me to view it with favour. His plan was very simple, but new to me. He commenced by making his graft sick, as he phrased it, by ringing its base, and letting it remain on the parent tree till its leaves became of an unhealthy colour, when he cut it off, and fixed it on the stock in the usual way. His whole discovery lay in making his graft sick beforehand, which, to me, appeared a very absurd procedure, but it really may have some reasonable foundation. Perhaps some one will be good enough to give the plan a trial with fruit and other trees at the proper season of the year, and chronicle the results. It should be done when the plants are in active growth. Mr. Weinschenk was a man of many theories, one of them being that the bark of the Cinchona, and not the roots or leaves, had the predominating, if not the entire, influence in the chemical conversion of the sap into the different alkaloids. Once when I was with him on a visit to the Nilgiri Cinchona plantations he asked the late Mr. M. A. Lawson, then Superintendent of the Madras Government plantations, but formerly Professor of Botany at Oxford, and consequently well acquainted with vegetable physiology, where he thought the controlling chemist was located—whether in the leaves, or in the roots, or where? Mr. Lawson answered, off-hand, "In the leaves, of course." "How is it, then," said Mr. Weinschenk, "that if I cut over a succirubra plant and graft on it *Ledgeriana*, which I let grow to some height, then behead and graft on a succirubra top, when I shall have succirubra leaves and succirubra roots, but the bark on the Ledger part of the stem, however many years afterwards, and however much it may have increased, will still be normal Ledger bark, and in the same way the succirubra bark at top and bottom will continue to be of the typical succirubra character, i.e., the Ledger bark will continue to contain a large proportion of quinine and but little of the inferior alkaloids, cinchonidine and cinchonine, and the succirubra *vice versa*. Therefore, said Mr. Weinschenk, I maintain that the controlling chemist is neither in the leaves nor in the roots, but in the bark itself. Of course, the obvious weak link in this chain of argument is the fact that the bark on the Ledger part of the composite tree was started while it bore Ledger leaves. But I think it is suggestive of possibilities of getting branch sports by the engrafting of other bark, and that the bark may really have a large influence in determining the nature of the alkaloids, or the colour of the flowers, or in other ways. It is just possible that some of the inexplicable branch sports may have originated in the accidental engrafting of bark from kindred species or varieties.

(To be continued.)

* Paper read at the monthly conversation at the Horticultural Club on Tuesday, March 8, by Mr. J. A. Gamble.

THE FERNERY.

HARDY FERNS.

(Continued from p. 156.)

To return to division of the Ferns, our remarks so far have only applied to the Crown Ferns, as we may term them, the *Lastreas*, *Polystichums*, and Lady Ferns, but there are other species such as the *Polypodies*, Bladder Ferns, and *Asplenias*, which either have

trees in their native habitats. The Spleenworts as rock-loving Ferns, are the better for a little limestone rubble in the soil, but the Hard Fern or *Blechnum spicant* and the Mountain *Lastrea* (*L. Oreopteris*) dislike lime, and prefer leaf-mould and yellow-loam with a dash of sand. The Parsley Fern (*Allosorus crispus*) is rarely seen in collections, but is very pretty out of doors (it will not do under glass) if properly installed. The Fern grows naturally on rocky hill-sides among the loose *débris* or rubble, and we have

slides had occurred among the *débris* of its native hills. Harts-tongues are of such varied character that it is a matter of taste as to their division, but wherever single crowns can be adhered to, the fronds and general developments are certainly enhanced in beauty. A tangle is never pretty, and with this species, as with some of the "crown" species proper, a little perseverance with a robust crown as a start will be well rewarded. *Chas. S. Drury, F.L.S., V.M.H.*

(To be continued.)

A TROPICAL GLASSHOUSE.

EVEN in the tropics glasshouses have their uses in plant cultivation, in that they provide shelter from too ardent sunshine and heavy rain to plants grown in flower-pots. Mr. J. H. Hart, Superintendent of the Botanic Gardens, Trinidad, kindly sent us a photograph of some which he has erected (fig. 65). "The upper roof," he says, "is of corrugated iron galvanised, and the houses stand east and west, so that at mid-day the roof centre affords a large amount of shade. We find that we can now do many things that formerly we could not do at all, as we can protect equally well from wind, sun, and heavy showers. They offer splendid places in which to raise small seeds, &c. The tree to the left top is *Theobroma bicolor*, imported by me from Nicaragua in 1893—its first introduction to the West Indies. It fruited in 1897."

THE ROSARY.

GARDEN ROSES.

THERE are many Roses of the highest importance and distinction which may be described as valuable for exhibition or garden decoration. Conspicuous among these are Madame de Watteville and Anna Olivier, Madame Lambard, and Marie Van Houtte, Madame Hoste, and Catherine Mermet among the Teas; A. K. Williams, Madame Victor Verdier, Margaret Dickson, Duke of Albany, and Alfred Colomb, among the *élite* of the hybrid perpetuals; and La France, Caroline Testout, and Kaiserin Augusta Victoria among the hybrid Teas.

Several of the Bourbons have an equal qualification, among which are the venerable *Souvenir de la Malmaison*, a fine Rose, but easily spoiled by rain; Madame Isaac Pereire and her gifted daughter, Mrs. Paul, Queen of the Bourbons, raised at Cheshunt in 1891.

In addition to the hybrid perpetuals incidentally mentioned, the following varieties may be recommended as being garden Roses, viz.: Duke of Edinburgh, which has a velvety texture that easily distinguishes it from other crimson-coloured Roses; Duke of Wellington, an over-estimated variety; and Duke of Albany, a very beautiful variety, whose most formidable rival in this section is Prince Arthur, raised by Mr. Benjamin R. Cant in 1875. Horace Vernet, though rich and effective in colour, is not trustworthy. A little more dependence can be placed on such very dark crimson varieties as Abel Carrière and Prince Camille de Rohan; though their flowers, I find, are easily tarnished by a strong sunshine. A much more valuable Rose for the garden is Charles Lefebvre, whose introduction, as Dean Hole once said to me at Rochester, "marked a distinct epoch in the history of Rose-cultivation." It is considerably larger and of more perfect form than the Duke of Edinburgh, yet its colour has not for me the same fascination. Captain Hayward, raised by the late Henry Bennett, is a fragrant and highly effective "scarlet-crimson" variety that should be included in every representative collection. Among pink varieties, and those of a lighter shade, the finest are Mrs. Sharman Crawford, Mrs. John Laing, Madame Gabrielle Luizet, Clio, and Spencer, the latter an improvement on Baroness Rothschild. The remarkable merits of A. K. Williams, Duke of Albany, and Margaret Dickson have already been recorded; for garden culture these may be regarded as quite indispensable.

Hybrid Tea Roses have now become an important

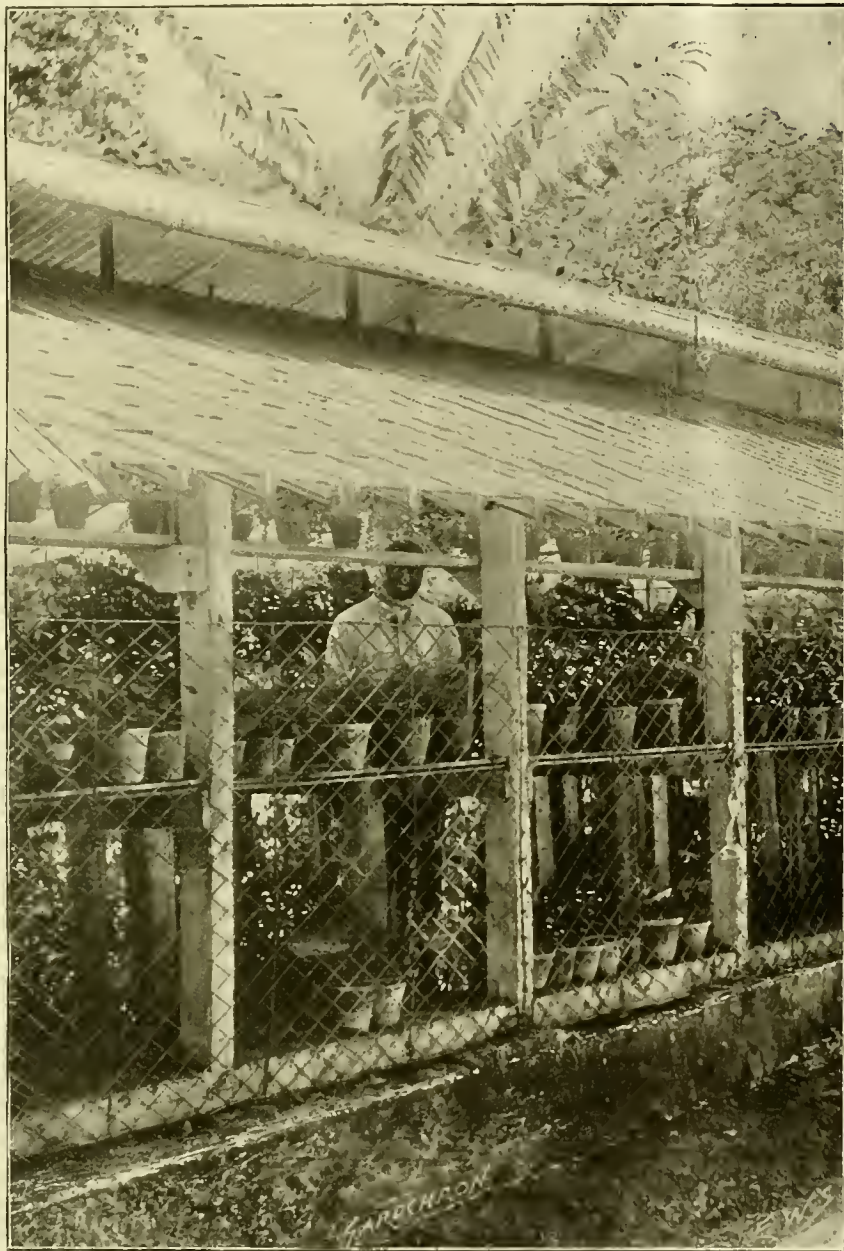


FIG. 65.—A GLASSHOUSE IN THE BOTANIC GARDEN, TRINIDAD.

running roots with fronds at short intervals, or form bunches on a small scale. Clearly with plants of this class, the less they are disturbed the better if they are doing well, since it is only when long-established that they form first-class specimens. Hence, if any shifting be required, the ball should be kept as intact as possible, while if of the *Polypody* or many-footed, persuasive wide pans are better than deep narrow pots, as the creeping root-stocks require room to spread. A little mulching of good leaf-mould is beneficial, representing as it does the natural provision afforded by the fall of the leafage from the

succeeded in growing it for years in a London garden by noting and acting on this fact. A large brick burr embedded in the soil represented a rock, and raising this, we planted a bunch of this Fern on the north side in the cavity left by the burr, then buried it all but the frond-tips beneath a spadeful of gravel, finally dropping the burr again into its place. Here the Fern was obviously at home, no sun reached its crown, no drought could assail it, and as for the superincumbent gravel, it simply pushed its fronds through unconcernedly in all directions as it had doubtless done many times before when slips and

class, especially since La France and its beautiful variations, such as Caroline Testout, and Duchess of Albany, Denmark, and Augustine Guinoisean, have, by the verdict of the National Rose Society, been relegated to this section. Among other varieties of special interest pertaining to this class are Cheshunt Hybrid and Viscountess Folkestone, precious for their fragrance, the former being of great value as a climbing Rose; Kaiserin Augusta Victoria, Camoers, and Grace Darling; Bardon Job, almost a single Rose, but of exquisite crimson hue, shaded with maroon; Mr. Wm. Paul's White Lady, and her parent, Lady Mary Fitzwilliam; Madame Pernet Ducher and Gustave Regis, beautiful in bud; Mrs. W. S. Grant, finest when half-blown; Marquise Litta, and Marquis of Salisbury, greatly contrasted in form and dimensions; and those grandest, in my estimation, of all Hybrid Tea Roses, Clara Watson and Gloire Lyonnaise.

Among pure Teas, those which I find most serviceable are—Bridesmaid, of higher colour than Catherine Mermet, from which it is derived; the Bride, of similar origin, but more exacting in its requirements of climate and of soil; Anna Olivier, of more amiable temperament; and Marie Van Houtte, a lovely pale yellow, which may be regarded as one of the finest of the Teas; Perle des Jardins, of deeper colour, but having a tendency to show blooms with more than one centre; Hon. Edith Gifford, Innocente Pirola, Madame Bravy, a Rose of much sweetness, greatly under-estimated in comparison with others; Madame Charles, whereby Madame Falcot has been superseded; Madame Hoste, Madame de Watteville, and Madame Lambard; Papa Gentier, Fiametta Nabonnand, Souvenir d'un Ami, and Souvenir de S. A. Prince, Corinna, and that recently introduced, brilliantly coloured variety, Empress Alexandra of Russia.

Of climbing Roses, the finest are Cheshunt Hybrid, Gloire de Dijon, Rêve d'Or, Reine Marie Henriette, Aimée Vibert, William Allen Richardson, Turner's Crimson Rambler, and Paul's Carmine Pillar, L'Idéal, of unique beauty, but not of lasting vitality; Climbing Niphetos, and Bouquet d'Or.

The majority of the Chinas, Polyanthas, and hybrid Rugosas should be cultivated in every garden, so also should the Austrian and Penzance Briar Roses, which, though very evanescent, are productive of most brilliant artistic effects. Of these the most beautiful are Rosa Harrisoni, the Austrian Copper, and Lady Penzance. *David R. Williamson.*

THE SAN JOSÉ SCALE.

FRUIT-GROWERS of this country, who have been somewhat anxious lest they should have a visitation of the San José scale insect, which has made such depredations on fruit grown on the vast American continent, will find something reassuring in the opinion that has been expressed by such an eminent authority on the subject as Mr. R. Newstead, the curator of the Grosvenor Museum, Chester. The other day Mr. Newstead was invited to attend the Board of Agriculture at Whitehall, and advise the officials as to the dangers of a visit from this pest, and he was able to fully satisfy them that the insect had not established itself in this country either upon fruit-trees or cultivated plants of any kind, whether grown in the open air or under glass, or upon indigenous plants. Mr. Newstead's opinion is entitled to the fullest consideration, for it is based upon many years of practical experience in plant and fruit culture, and nine years of scientific investigation of the injurious insects of this country.

As to the appearance of the pest in this country on imported fruit, Mr. Newstead has neither heard of nor seen instances of it, although he has made careful search for it at Liverpool, Chester, and elsewhere. He is not prepared to deny the possibility of its being brought over on fruit, but he feels confident that the chances of its ever establishing itself in this country by such means are very remote. He thinks the insect is much more likely to be brought here on imported plants, and he suggests that such

consignments should in all cases be placed in quarantine, and rigorously inspected by experts. In any case, however, he feels that the whole matter is nothing more than a scare, and that the pest is no more likely to thrive in this country than the Colorado-beetle, the Hessian-fly, or locusts, &c. In this opinion he is firmly supported by the Entomological Society of London, before whom also Mr. Newstead gave his experience. *Liverpool Evening Express*, March 10, 1898.

ODONTOGLOSSUM CRISPUM.

YOUR advertising columns have this month already announced the fact that on several recent or early dates some 6000, 8000, 15,000, and yet again other large consignments of the Pacho varieties of *Odontoglossum crispum* would be offered for sale at Messrs. Protheroe & Morris' famous rooms in Cheapside. This matter, surely enough, should set one wondering whether the stock of *O. crispum* is so near exhaustion as we were led a few years ago to believe; or whether the collectors are endeavouring to make such a clean sweep this time, that for a few years to come at least, there will be little likelihood of such enormous consignments being sent to Europe, as would seem to have arrived during the last few months.

I remember well Mr. H. Blunt coming down from the Messrs. Low & Co., Clapham, to Mr. J. Day's, to inspect the different species of *Odontoglossum* then included in the collection, so that he might see *O. niveum* and *O. pescatorei*, of which there were just two plants of each species in the collection at that time.

I have before me *Warner's Select Orchidaceous Plants*, and the seventh plate of that superb work is of *O. niveum* major, from this famous but now defunct collection. The twenty-fifth plate of the same volume represents a good spike of *O. pescatorei* that was exhibited at South Kensington by Messrs. J. Veitch & Sons, of Chelsea, in the spring of 1863. In the description that accompanies the plate, it is stated that "a plant, strong and vigorous, was grown in the collection of T. Dawson, Esq., Meadowbank, that had borne branched spikes with fifty flowers." I mention these, however, to show the great rarity of the finer varieties of *Odontoglossums* when the first collectors went to Bogota, the region of the Magdalena river, the Pacho district, or any other spot likely to reward their quest. Since that time what enormous quantities have come over of both *O. crispum* and *pescatorei*! And to-day the question naturally arises, where are they? Are the finest plants now met with, those that have been under culture for ten, fifteen, or twenty years? Can many collections show good specimens of the plants that H. Blunt sent over? or are there many pieces still in culture which Chesterton collected? I fear not; most of those early ones grew well for a time, then not quite so well; then may be the plants changed ownership, or a fresh grower had them in charge, and so on, occasional improvements taking place with recurring relapses, until a fresh consignment gave opportunity for the purchase of 50, 100, or a greater number; then the collection was considered to be improving, because the cultivator had in his hands a number of the plants possessed of natural vigour that he did his utmost to develop, and with some little knowledge, achieved better results than extended over a considerably long period of time.

But are these two species even now so universally well grown as to lead one to say there is nothing more to be learnt? It would certainly seem to me there is yet something that cultivators may learn; but the crux of the matter is, what is that particular treatment which is so essential to the continued well-being and constant improvement of these plants? I venture to say that most growers can remember good collections that have come under their observation, or fine housefuls of which they have had charge, but when dispersed, what has become of them? or if a collection has remained intact, do the original plants still exist? Whether it is the houses in which the plants grow (and these vary enough in many gardens), or the special kind of treatment afforded the plants, there

would still be the lack of a certain method of treatment whereby uniformly good growth and vigour can be assured.

It is certainly worth while inviting an expression of opinion from some of the leading Orchid-cultivators of the country which might throw light on this matter, especially as to the aspect of houses, whether span-roof, lean-to, or half-span, the kind of staging or bed on which to place the plants, dealing also with moisture, shading, syringing, and all other essential points. The subject of earth *versus* stone or tile-floors; of open rain-water and water-tanks. In the interest of the thousands of plants of *Odontoglossums* now passing into the hands of many who have not as yet had much experience with these lovely plants, some such expression would, I venture to say, be most acceptable, and likewise be of assistance to the older practitioners, enabling them to decide if the term degeneration is the correct one to apply, or whether it be not natural decay that is brought about by unnatural treatment. *W. Swan, Bystock.*

ODONTOGLOSSUM CRISPUM "BARONESS SCHRODER" (fig. 66).

THIS, the grandest of the crimson-purple blotched varieties of *Odontoglossum crispum*, was shown by Baron Schroder at the Royal Horticultural Society on June 12, 1894, when, although a very tiny plant indeed, it created a great sensation, and secured a First-class Certificate. At the meeting of the Royal Horticultural Society on March 8 last, the plant was again shown, and it gave evidence of the good treatment received at the hands of Mr. H. Pallantine, Baron Schroder's gardener, both in the increased vigour of the plant and its magnificent and richly-tinted flowers. So much were the members of the Orchid Committee impressed by it that they unanimously recommended a Gold Medal for it as an extraordinary exhibit. It is usual to think of varieties of *O. crispum* as being white, with more or less colour in the spotted forms; and in this case too, the ground colour of the flower is white, but from the predominance of the rich crimson-purple blotches, it presents itself as a coloured rather than a white flower. In its section there are but few, and the nearest allies are *O. c. Franz Masereel* and the beautiful *O. c. Ashworthianum* of Elijah Ashworth, Esq., and which was illustrated in the *Gardeners' Chronicle*, February 15, 1896, p. 197.

METHODS OF PROPAGATION.

(Continued from p. 66.)

CORMS AND BULBS.—Though the trade florist looks to Holland for his yearly supply of Dutch bulbs, so called, yet there are some which he can not only grow at home, but in many cases grow better than the foreigner. One of these is the *Gladiolus*. Early in my trade career, the chief, if not the only mart for these handsome autumn-flowering plants was Paris, where the Verriers, of Rose fame, and Messrs. Vilmorin, had the monopoly of the varieties raised by that industrious and painstaking hybridist, Souchet, then head gardener to Napoleon III., up to the period when he unfortunately went "Nap" for the last time, and failing, was obliged to flee the country.

The first *Gladiolus* reached us from Southern Europe about the middle of the sixteenth century, and the Byzantine form nearly half a century later, while it was not till 1751 that we got the first instalment of the thirty kinds indigenous to the Cape of Good Hope, and not till a quarter of the present century had passed did we get the other varieties, including *ramosus*; but when the supposed progenitor of the florist's *Gladiolus* "*gandavensis*" reached our gardens [W. Olbers Focke, in his *Mischlinge* (hybrids), gives *G. oppositiflorus* and *G. psittacinus* as the parents, the cross being effected in the Duc d'Arenberg's garden in Brussels, and the plants sold to Van Houtte. Other authorities give *G. psittacinus* and *G. cardinalis*, but no one has succeeded in making this cross. Herbert, Belfield, and Bidwill

believed the first-named cross to be the right one. ED.] I know not, but its name would indicate that it came from Ghent, the great horticultural emporium of continental Europe. Now, Mr. James Kelway, of Langport, Somersetshire, sends out at least a dozen new varieties yearly, most of them dubbed with the classical names of which he seems so fond. Many of these obtain First-class Certificates from the Royal Horticultural Society, and there is a limited demand for them; and when the advance is very marked, and the variety novel and particularly attractive, the demand greatly exceeds the supply. Alas! it sometimes happens that after the bulb has flowered and obtained honours it fails to produce bulbils, and in some cases to break—that is, to produce more than one bud to the corm. The fortunate owner, when planting-time comes in March, examines the

Another way to propagate the plant is by means of seed, but it must be borne in mind that by this method the reproduction of any particular variety cannot be assured, as the tendency is constantly to sport, even when the flowers have not been cross-fertilised by man, this being nearly always effected by insect agency. Nevertheless, good seedlings are always in demand, and command a better price than mixed named sorts, there always remaining the off-chance that the purchaser may be the lucky raiser of a good one, and the interest attaching to the culture of *Gladiolus* is thus doubled. The seed, especially by some varieties, is freely produced. As soon as the seed-vessels begin to burst, the latter should be gathered, and laid singly in shallow boxes or baskets, exposed to the air, when they will open and the seed be easily secured. Thoroughly harvested, these will

the seedlings will need no further care, except to be kept free from weeds, and occasionally watered if the summer be a dry one. Thus treated, they will keep growing up to November, but it is safer to begin to dry them off before this by replacing the lights, and withholding all water. The little corms will now gradually ripen, and may be got up as soon as the leaves begin to turn yellow, and hung up by the grass in bundles, to dry off gradually, on the back-wall of a vinery. Any wet day they may be cleaned, the dead foliage cut away, and the ripe corms stored in an airy place, where frost cannot reach them. Planted out early the next year, a few will throw up a short spike and flower late in the autumn, but the majority will not produce a flower till the next or third year from sowing the seed.

It may here be noted that the first spike from a seedling *Gladiolus* is generally a grand one, both in length, pose, and size of flower, this being one of the reasons why the raisers make such a grand display at the Crystal Palace and other autumn shows, their acres of seedlings then being in fine flower. The other sections of the *Gladiolus*, as the French hybrids before referred to, and all the brilliant varieties of the elegant *ramosus*; Van Houtte's exquisitely pretty dwarf early kinds of *ramosus unius*, *Gladiolus Colvilli*, and its useful white sport, the *Bride*, reproduce themselves by budding or offshoot corms in quite sufficient numbers for ordinary use, but may be propagated in the same manner as the *Gandavensis* section if desired.

Not only will all these last force easily, but I gather from the initial number of the *Weekly Florists' Review*, that the lovely variety *Shakespeare*, raised by M. Souchet, always one of the earliest to flower, and an older but very third-rate kind, named *Madame Monneret*, as well as one of the yellows emanating from *G. trimaculatus*, named *Isaac Buchanan*, force well and easily. *Experience*.

(To be continued.)

FLORISTS' FLOWERS.

CHRYSANthemum "PRINCESS BLANCHE" AS A LATE FLOWER.

This variety does not seem to me to be shown the amount of favour by gardeners of which it is deserving as a late-flowering variety. *Princess Blanche* is undoubtedly one of the best from Christmas until the end of February. I had on February 20 some flowers in excellent condition. I do not say that these are large, mine being only of medium size, but for usefulness *Princess Blanche* is a capital late variety. The flowers are of a very pale blush tint, changing to pure white when fully expanded. My cuttings were rooted in February, 1897, and potted on as they seemed to require it, but they were not housed until November, being then well advanced. The plants were kept very cool, short of frost entering the house, until the flowers began to expand, when they were given a little warmth in order to assist their opening. J. H.

FRENCH ASTERS.

The best type of this *Aster* (and one might go the length of saying the true form of it) is what is known as Truffaut's *Paeony-flowered*, with the petals imbricating, or, perhaps more correctly, incurving to the centre. But it has been noticed of late that exhibitors of *Asters* at flower-shows, and especially at those in the West of England, where *Asters* are grown remarkably well, consider all flat-petalled types to be French *Asters*, with the result that the larger *Comet* varieties, which can be grown to a good size without much difficulty, are driving the true French variety, and the symmetrical *Victorias* also, out of the field. The Taunton Horticultural Society, observing this tendency, have wisely modified their classes for *Asters*, and they are excluding the *Comet* type from their competitions for French *Asters*, and require that the *Comets* be shown by themselves. It would be a pity if the incurring French *Asters* of Truffaut's type were to pass out of cultivation. They are as distinct in character as they are handsome in appearance



FIG. 66.—*ODONTOGLOSSUM CRISTUM* "BARONESS SCHRODER": PURPLE SPOTS ON A WHITE GROUND. (SEE P. 164.)

corm, and if he find that there are two or three buds bursting through the solid substance of the corm, underneath the enveloping skin, he takes all this off, and then with a sharp knife divides the corm into as many pieces as there are buds, at the same time rubbing off all the little cormlets found at the base of the corm among the dead roots, and plants the pieces in a prepared bed, sows the cormlets in boxes or seed-pans, points upward, and so multiplies the variety.

Although not exalted to the height of a florist's flower, there are now at least 1,000 distinct varieties in commerce, including the new hybrids of *Lemoine*, included in the *Lemoinei* and *Naneiensis* sections.

It follows, therefore, that the *Gladiolus* is included in all the schedules of autumn shows, and the demand has in consequence grown constant for good kinds, while the flower-spikes are so useful and lasting when cut for decoration that florists are compelled to grow them.

keep till the sowing-time, which is generally February. My practice is then to rub off the wing of the seeds between the palms of the hand, and to fan away this light chaff, leaving only the kernels of the seeds, as they may be termed.

When sowing, make up a shallow hot bed, and cover it when partly settled with 6 to 8 inches of good mixed soil, enriched with well-decayed manure, and rendered light and porous by sharp sand. On this draw drills 3 to 4 inches apart, and 1½ inch deep, sow the seeds thinly therein, covering with fine soil and pressing firmly.

If you have one to spare, put a frame and lights over and keep close, otherwise cover with old mats. As soon as the little grass-like cotyledon (seed leaf) pierces the soil, give air during the day but close up at night, and water in the morning whenever the soil looks dry, the object being to keep the little seedlings constantly growing.

By June the lights may be removed altogether, and

and they show a range of striking colours certainly not to be found in the Comet type, and scarcely in the Victoria; but they must be well cultivated to obtain large, handsomely, and regularly incurved, and brilliantly-coloured blooms.

As the type originated with M. Truffaut in France, it has a good claim to be recognised as the true French Aster. The term German Aster should properly be modified by the addition of the qualification quilled, for that is what is really meant. The quilled Asters, when a good strain is well grown, are really beautiful, delicate, symmetrical, and attractive. Of taller and more spreading growth than the flat petalled varieties, they are yet very free, and admirable for cutting, generally flowering on long, erect stems. To obtain a proper representation of Asters in a cut state, there should be distinct classes for the quilled, the incurving Truffaut's French, the Victoria type, with their large full blossoms, symmetrical in form, and having recurring flat florets; and the Comet. This would comprise the best types. The crown-flowered type, which has a white centre, and an outer margin of some colour other than white, appears to have become less popular. This type had always a tendency to produce flowers with open centres. *R. D.*

EPACRISSES.

AN exceedingly interesting and elegant genus of plants, all the species of which are natives of the warm temperature of Australia, and furnished like the Ericas of South Africa with linear leaves. The plants are very ornamental, and have long been inmates of our gardens, although to a less extent now than formerly. The different species are easily cultivated in the cool greenhouse, and they are not subject to attack from insects—in itself a great advantage.

Although the plants are mostly cool-house subjects, they bear gentle forcing when growth has started, and also to bring them into flower. Where a fairly large number of these plants are cultivated, some of them may be had in bloom early in the New Year by selecting such as make early growth, and which was ripened in the full sun in the open air the previous summer. It is good practice to stand the plants after growth has been made under glass in beds of fine coal-ashes, or gravel, in the middle of the month of June. The varieties which have an upright habit are those that I have found are the more suitable for flowering early, whilst those that possess a scandent habit are trained on a trellis of wire-work, being less severely pruned than those.

The plants should be allowed to go generally out of bloom and then be kept rather drier, but not dry for a fortnight, and at the end of that time cut back pretty severely in the case of the non-scandent species, and allow to make a break in a close cold frame, putting them into a house with a temperature of 55° by night, and 65° to 70° by day, and syringing them, and encouraging them to make growth.

The commencement of growth marks the most suitable season for repotting, surfacing, &c., although in the case of young plants from which flowers are not required another shift may be afforded late in July. A plant should never be afforded a pot that is larger than the old one by more than one inch in diameter.

Great care should be taken with the drainage, which should occupy one-sixth of the depth of the pot; and this, and the latter should be either clean or new. As a potting soil, choice fine partially-decayed hard fibrous peat, not too finely broken up and not sifted, coarse silver sand or well-washed road-grit, and some nodules of charcoal or of sandstone. Pot firmly, using a rammer, and be sure that the soil reaches down to the crocks and is made close and firm from bottom to top. Leave ample provision for affording water. Usually a quantity of weak shoots occur in the centre of the plant which are of little use, but which hinder the ripening of the chief shoots, and this thin spray should be removed before being potted. For a short time afterwards the repotted plants should be kept rather close, inuring

them gradually to air when it is seen that roots are freely penetrating the new soil.

Propagation is effected by means of cuttings and seed. Seed may be sown in early autumn and in spring, and cuttings may be inserted at the former season. Half-ripened shoots should be employed as cuttings, cutting them square across, and clipping off the lower leaves closely with a pair of scissors. Having prepared cutting-pots by well crocking them and filling them with sandy peat, take care to place small nodules of peat an inch deep over the crocks. In this case the soil and sand should be finely sifted, care being taken to cover the crocks with a layer of the coarsest sifting, 1 to 2 inches deep, and finally to place a layer of the cleanest (washed) silver-sand on the top. The cutting-pots should then be afforded water, and in an hour the cuttings may be put within an impression made with the edge of the bell glass that will be used to cover them. A slight amount of water with a fine rose should be given to settle the cuttings.

I have been very successful in striking cuttings by plunging the cutting-pots to the rims in a half-spent hot-bed. The bell-glasses should be removed twice daily and wiped dry, and when it is seen that the cuttings have begun to grow, the glasses may be tilted very slightly at first, and finally removed entirely. The rooted cuttings may be potted in thumbs, the utmost care being taken not to injure the hair-like roots in the process. A shelf near the roof-glass in an intermediate temperature will suit them till they become established, when they may be removed to cooler quarters. In raising seedlings, new forms of flowers and new colours may be expected, a probability which makes seed-sowing so interesting. *H. T. M., Stoneleigh.*

THE WEEK'S WORK.

THE FLOWER GARDEN.

B. H. WALTERS, Gardener, Eastwell Park, Ashford.

Delphiniums and Shrubby Varieties of Phloxes may now be planted or transplanted in beds or borders. When clumps of Phloxes have grown to a large size, as they will in the course of three or four years, they should be dug up and divided, the central parts being chopped out and thrown away. This, although a ready means of increase, is not the best to take to obtain fine heads of flowers, and the surest method of securing the latter is by means of autumn-struck cuttings. These should be struck singly in flower-pots of 3 inches in diameter, or half-a-dozen together in a 6-inch pot, wintering them in frames. The land to be planted with Phloxes should be heavily manured, deeply dug, and well drained, for although the plant needs much water in hot weather, the surplus should pass freely away. Delphiniums may receive nearly the same kind of treatment, excepting that less manure should be employed; and the roots and rootstock being very brittle, greater care is necessary if division is resorted to. The small bits broken off, if furnished with a bud, should be grown on in the reserve garden, not planted in the herbaceous plant border, where they are likely to suffer from crowding. I need not specify varieties of either plants, these being found in great variety in most nursery catalogues.

Primula Polyanthus.—If an increase in the stock of this useful spring-flowering plant is required, seed should be sown now, and onwards till May, in boxes filled with moderately light soil under glass, and carefully afford water. The seed takes some time in germinating, and the soil is liable to turn sour if afforded water excessively. When large enough to be handled, prick out the young plants into boxes, or a frame placed over a spent hot-bed, and plant out in the reserve garden. *Primula polyanthus* resents often removal, and should therefore be assisted by surface dressings of manure in a rotten state and fresh soil, when it is seen that leaves and flowers grow smaller.

Bedding Plants.—The seeds of *Lobelia erinus* varieties; *Pyrethrum aureum* fol. var.; *Phlox Drummondii*, German and China Asters, Ten-week and East Lothian Stocks, *Zinnias*, *Marigolds*, *Centaurea candidissima*, *Cineraria maritima*, *Perilla nankinensis*, *Petunias* both single and double-flowered, and many others, may now be sown in mild

heat in beds, boxes, pans, and pots. Examine them closely when appearing above ground, and guard against damping. *Zinnias* are very liable to damp-off, and it is best to prick them as soon as they can be handled into frames or boxes. Continue the propagation of such plants as *Alternanthera*, *Lobelia*, *Iresine*, *Coleus*, *Dahlia*, and *Mesembryanthemum cordifolium variegatum*, till the number of plants required has been obtained.

Gladiolus.—Providing the spots where these plants are to flower have been manured slightly and deeply dug, corms may forthwith be planted. If the soil be heavy and retentive, place a handful of sharp sand in the hole previous to putting in the corm. Let the corms according to their size be planted from 4 to 6 inches deep, making the soil pretty firm around them; and arranging them in lines, groups, or beds. If a robust-growing plant, with brightly-coloured flowers, is what is wanted, plant the variety *Brenchleyensis*. This variety contrasts admirably with *Hyacinthus candicans*. *Gladiolus* are very suitable for planting among dwarf shrubs. Those who take especial care of their *Gladiolus*, or those who grow for exhibition, start the corms in pots, which they place in the greenhouse or cold frame, planting them in the open in early May; and this is undoubtedly the better plan if space can be afforded.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Tomatos.—In order to keep pace with the demand, every available means should be adopted, and Peach-houses, after the fruit of the latter is set, may be utilised for *Tomatos*, planting them against vacant spaces on the trellises and sunny walls. The plants may be grown in 9 or 10-inch pots, or in mounds or ridges of soil placed on the Peach borders; and planting in this manner does away with the making of holes in the borders, perhaps to the injury of the roots of the Peach-trees. The soil may consist of three parts loam to one of rubble. On finishing the planting, afford a moderate amount of water, and secure the stems to the trellis, or to a stake, with a broad piece of bast.

The Grape-room.—After this time artificial heat will only be required in damp, dull weather, applying heat at 9 A.M., and ceasing to use it at 12 noon, affording ventilation by the upper windows, and shutting up early in the afternoon. On fine sunny days, no fire-heat will be required, and the upper ventilators may be opened at 8 A.M., and the room closed before sunset. Examine the water in the bottles occasionally, adding more where necessary, and keep the bunches free from decaying fruit, and do not sweep the floor or cause dust to rise and settle on the bunches.

Strawberries.—Maintain the supply by a regular introduction of fresh batches of plants, placing the plants on shelves and stages near the glass, and generally carry out the directions given in earlier calendars. If the plants can be kept out of vineries the chance of red-spider being communicated to Vines is much lessened, but in many gardens there is no choice. At this season, *Strawberries* should be closely attended to, water being afforded at short intervals in accordance with the stage of growth. Those plants on which the fruit is swelling require water in liberal quantities as sun-power increases, and on hot days water may be required twice; air should be afforded as freely as is consistent with progress, and the syringe not used during flowering. Fumigate or vaporise if aphides are present, and do not omit to thin the bunches of fruits at an early period. *Strawberries* to be sent by rail or other conveyance should be packed one layer deep in shallow boxes, using soft moss, the finest wood-wool or wadding at bottom and top, with a soft Bean or Vine-leaf wrapped round each fruit. Pack closely, but not so as to bruise.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Palms.—The necessary cleaning and repotting of these plants should receive attention at this season, and may be carried on till May and June, if warm-house accommodation be available. If the plants are not infested with scale, weak soft-soapsuds or paraffin emulsion—I prefer the latter, as it heightens the colour of the foliage—may be used in sponging the plants. If scale be present, as is probably the case, the wash must be stronger, and it is advisable to syringe such plants that are about to be cleaned with the above solution as a beginning, in order to

render the dislodgment of the scale less difficult. Palms should not be retubed or repotted unless they require more root-room, to get rid of stilt roots, or the soil is exhausted, or the drainage defective. Top-dressing may be used on plants not requiring repotting, this being kept in position by a ring of zinc or lead. A number of young Palms should be kept in small pots for table and room decoration. If the soil is in a bad condition, wash it all away from the roots and repot in fibrous loam two-thirds, and leaf-mould one-third, and enough coarse silver-sand as will render the mass porous; pot firmly, working the compost among the roots, and by the side of the pot. The drainage should be good, and fairly abundant, and be well covered with the fibry parts of the loam. Palms that have suffered much root disturbance, or which have been root-pruned, should be afforded bottom-heat till re-establishment has taken place.

Ferns.—Fern spores, whilst in good germinating condition, may now be sown on sterilised lumps of peat, or peat and loam, placed in pots half filled with crocks, and kept moist by sprinkling with a very fine rose-can. It is well to cover the pots with *cloches* or bell-glasses, or hand-lights. Greenhouse species need cool treatment, and exotic Ferns from warm countries stove treatment. When the seedlings appear, remove all shading material, and only make use of it against bright sunshine. Any of the exotic warm or greenhouse species in need of repotting or top-dressing should now receive attention, and if more of them are wanted, most of the species may be readily increased by division of the root-stock. As a potting-soil, fibrous loam, peat, leaf-mould, in about equal ratio, with some coarse silver-sand and small nodules of charcoal suit most of the species. As in the case of Palms, the pots should be clean inside and out, and the drainage sufficient. The fernery may at this season receive a general overhauling and cleansing, removing dead fronds, filling up vacant spaces with suitable species, and introducing, where space permits, Palms, Cycads, Phormiums, Begonias of the Rex type, Saxifragas, Aralia Sieboldi, Ophiopogons, Ficus repens, &c. Make up anew the pockets and ledges where the soil is washed away, using lumps of turfy loam and peat, sprinkled with plenty of sharp sand, and let the fernery be kept moist and and rather warmer for a short time, in order to get the plants into growth.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

Second Early Peas.—The ground selected for these should have been well prepared in the manner recommended on p. 83, Feb. 5th. It should have been deeply trenched and also enriched with manure. It is good practice to sow tall-growing sorts in rows 5 feet apart, and to crop the intervening spaces with Early Turnips, Dwarf Cauliflowers, Cabbages, or Lettuce. Sufficient space is a very important circumstance in securing an abundant crop. Tall varieties that may be recommended for present sowing are, Duke of Albany, height 5 feet; Predigy, height 5 feet; Telegraph, 5 feet. Marrowfat Peas not exceeding 3 feet in height are, Dr. McLean, Boston Unrivalled, and Fillbasket. Valuable Dwarf Marrowfat sorts also for present sowing are, Stratagem, height 2 feet; the Daisy, 2 feet, and Sutton's Dwarf Defiance, 2 feet.

Asparagus Beds.—If the beds were covered last autumn with a top-dressing of rich manure, the less decayed parts of same may now be removed. Then afford the beds a dressing of bonemeal, and point the manure and bonemeal into the soil 2½ inches deep, which will loosen the soil, and give the heads more freedom to come through. Care must be taken, however, not to disturb or injure the plants if near the surface. When the beds have been so forked, give them a top-dressing of common salt, rake them over neatly, and fork up the alleys.

Sowing and Planting Lettuce.—All varieties of Lettuce will succeed if sown now on a border which has been richly dressed previously with rotten manure. Sow the seeds in rows 9 inches apart, or in beds 4 feet wide, and cover the seeds half an inch deep with fine soil. Some good Cos varieties are Bath or Brown Cos, Mammoth White Cos, and Carter's Giant White Cos. Of Cabbage-Lettuces, the best are Early Paris Market, Commodore Nutt, Neapolitan, and Perfect Gem. Where there has been any difficulty in growing large and crisp Cos Lettuces, I would advise a trial of the Cabbage varieties. These, if grown quickly, and with plenty of moisture, are excellent in every way. Lettuces that have been wintered in handlights may now be lifted and planted in the open border. Handle the plants carefully,

and plant them from 9 to 12 inches apart, according to the sorts. Do not expose them to the air more than is necessary, the young roots being easily damaged by cold winds or strong sunshine. Afford air on fine sunny days to Lettuce plants in frames, and close the frames early in the afternoon with a temperature of 60° to 70°, giving the plants at the same time a slight spraying with the syringe. The night temperature should be kept as nearly as possible at 45° to 50°.

Work that should be hastened.—If from any cause Onions, Leeks, Parsnips, Broad Beans, Early Potatoes, Early Carrots, Radishes, Spinach, and Peas have not been sown or planted, no time should be lost before this is done.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorking.

Odontoglossums.—Such cool-house species as *Odontoglossum Edwardii*, *Oncidium macranthum*, *O. serratum*, *O. menachicum*, *O. undulatum*, *O. superbum*, *O. Leopoldi*, *O. lamelligerum*, *O. Loxense*, and *O. zebrinum*, being now in growth, any that require re-potting, and which are not showing flower-spikes, may be attended to in this respect. In order to afford sustenance to those showing flowers, carefully pick out some of the old compost, and afford fresh in its place. These species prefer a cool, shady part of the house, and moisture-laden air, and if all of them be placed in a group together, it becomes an easy matter to afford the proper conditions by syringing between the pots twice or thrice a day, according to the state of the weather. At this season, those plants having flower-spikes require copious applications of water at the root, till such times as the spikes are removed. Plants which have gone out of flower should be placed altogether, in order that they may be treated differently to the other plants, and kept rather dry, which will enable them to rest, but the atmosphere around them must be moist. Such as have flowered strongly, will in most cases have slightly shrivelled, but it is an error to afford these much water, with the idea of causing an immediate plumpness in the pseudo-bulbs, as by this practice the roots decay, and the plants deteriorate generally. Strong, healthy specimens frequently send up two flower-spikes from one pseudo-bulb, but consideration for the future of the plant demands the removal of one of them, and from the side where the leaves are the shortest, the best spikes being usually produced from the axils of the longest leaves. Slugs and woodlice cause much injury to the growing tips of roots and to the spikes, and the cultivator should examine each plant every night by lantern-light, in order to discover and kill these pests of Orchid-houses. *Odontoglossum Madrense* and *Colax jugosus*, if placed in a well-shaded position, grow well in this house. The latter is now showing for flower at Burford. Both species should henceforth be well supplied with water.

Cymbidium Mastersii, or *C. affine*.—If any plants of this species require repotting, it should forthwith be carried out. Let the pots be rather large for the size of the plants, and make use of a compost of two-thirds loam, one-third peat, with the addition of a little coarse silver-sand and a few crocks; and having done this, keep them, and those that have not been disturbed, in a moist state, and well protected from strong sunshine, and their foliage will remain fresh and clean, and strong growths will be made. *C. eburneum* may be repotted within a fortnight after flowering has ceased.

Masdevallias should now be showing flower; and although these are moisture-loving plants, the compost must not be kept in a saturated state. Species such as *M. Wagneriana*, *M. melanopus*, *M. ludibunda*, *M. infracta*, *M. hieroglyphica*, *M. Armini*, *M. gemmata*, *M. Celeniana*, *M. Estradae*, *M. caudata* (*Shuttleworthii*), *M. Courtauldiana*, &c., which are dwarf, should be cultivated in pots placed on a stage, but afterwards suspended near to the roof-glass when their flower-spikes show, which will tend to give strength to the spikes, and allow the plants to be seen to advantage. *M. bella*, *M. Chimera* and its varieties, *M. Wallisii*, *Winnia*, *Gongora*, *Rozlii*, *stupenda*, and *Backhouseiana*, should be similarly treated. The present is a suitable time for rebasketing or surfacing these species, and those that are well established in a compost that is in good order, may have a few heads of sphagnum-moss pricked in over the surface. Repotted plants must be afforded water with discretion till plenty of roots are made, or spotting of the old leaves will occur. The plants should be held over a tank occasionally, and well syringed on the under-side of the leaves.

Habenaria rhodochila.—This plant is starting to grow in the warm-house, and it may be repotted without delay in long thumbs, one tuber in each, filling around the tuber to half its height with crocks, keeping the top of the tuber just below the rim of the pot, and above the crocks use the following compost: one-half fibrous peat and loam, one-half finely-chopped sphagnum-moss, some finely-broken crocks, and a small quantity of coarse silver-sand, the whole being first well rubbed together. Let the materials be firmly packed round the tubers, and place in a warm, growing temperature, and lightly sprinkle the compost whenever it becomes dry, gradually increasing the amount of water after growth has begun. When the points of the new growths are seen pushing up through the new compost, it is of importance to raise the plants up to the roof, otherwise the flower-spikes will become weak. *Habenarias* thrive in full light without direct sunshine. Other well-known varieties, as *H. militaris*, *H. Susanæ*, *H. intermedia*, *H. galeandra*, *H. longicalcarata*, *H. carnea*, and its variety *nivosa*, may likewise be repotted, and treated exactly as recommended for *H. rhodochila*.

THE HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Raspberries.—Such of the canes as were left at their full length when fastened to the supports should now be shortened to a point 6 inches higher than the stake or wire to which they are secured; and Raspberry-caness recently planted may be cut down to within 6 inches of the ground, to cause strong shoots to be thrown up this year for fruit-bearing next year, as, if left at their full length the year of planting, a few small fruits are borne, and then the plants die, there being not enough vigour in them to perfect fruits, and produce young canes at the same time. The young shoots that spring from the cut-down canes should be reduced to two when grown 2 inches in height.

General Remarks.—Recently-planted fruit trees, having settled down together with the soil, may be pruned forthwith, and the trees made secure with ties or shreds and nails. The pruning consists this time of removing weak shoots, and cutting the others back to about one-third of their length. It is usual for the shoots, when left of their full length, to form fruit-buds only the first year instead of growing, rendering it necessary for the cultivator to cut these self-same shoots hard back the next year, which is so much time lost. In pruning a shoot, cut to an outside bud, and one that points in the direction the branch should take. Attention to this point is very necessary when laying the foundation of the crown. If mulching was placed over the roots, it should now be removed, so as to allow sun-heat the more readily to penetrate the soil, some fresh materials being used if the heat of the summer seems to demand a fresh mulch. A crumbly, friable state of the soil is almost as good as a mulch in retaining moisture in the soil, and much more favourable to the ingress of heat, and consequently of air and water. The opening of the blossoms of fruit trees of all kinds, which are very abundant with the exception of Plums, has been beneficially retarded by recent frosts in the midlands and doubtless elsewhere. The bullfinches are getting troublesome, especially in pecking out the buds of the Plum, and the gun must be used against them. If covers are used to protect Peach and Apricot trees, do not let these remain down an hour longer than is necessary during the hours of daylight, but cover the trees every night for the present. Trees that are aged, or which consisted of undesirable varieties, and were grafted with others last year, should receive attention; and if the scions are seen to have made strong growth, remove all the remaining old branches; but if the scions are weak, some of the branches of the stock should remain for another year, so as to maintain healthy root-action. Do not let any scions that are laid-in get dry, as they are apt to do when bundles of them are laid-in, but either spread them in a thin row, or afford water, and cover the adjacent soil with moss. Pruning should now be brought to completion, and the soil over the roots loosened.

COTONEASTER.—M. ZABEL, of Gotha, has published, in the *Mittheilungen der Deutschen Dendrologischen Gesellschaft*, a monograph of the genus *Cotoneaster*, in which are described twenty-four species.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

MONDAY, MARCH 21—National Chrysanthemum Soc. Adj. Ann. Meeting, at Anderson's Hotel, Fleet St., at 6 P.M.
TUESDAY, MARCH 22—Royal Hort. Soc., Coms.
WEDNESDAY, MARCH 23—Torquay Gard. Assoc. Spring Exh.
SATURDAY, MARCH 26—Royal Bot. Soc. Gen. Meet.

SALES.

MONDAY, MARCH 21—Hardy Perennials, Iris, Begonias, Cannas, Roses, &c., at Protheroe & Morris' Rooms.
TUESDAY, MARCH 22—Imported and Established Orchids, at Protheroe & Morris' Rooms.
WEDNESDAY, MARCH 23—Japanese Lilies, Tuberoses, Gladioli, Roses, Begonias, Hibernaceous and Hardy Border Plants, at Stevens' Rooms.
FRIDAY, MARCH 25—Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—43.7°.

ACTUAL TEMPERATURES:—

LONDON.—March 16 (6 P.M.): Max., 55°; Min., 47°.
PROVINCES.—March 16 (6 P.M.): Max., 53°, Aberdeen; Min., 40°, Shetland.
Mild, slight rain; dull.

Rating of Glass-houses in Market Gardens. A CASE of very great importance to market gardeners and nurserymen, came before the Court of Appeal on Friday, 11th inst. Most of our readers are familiar with the enormous development of the market garden industry of late years. At various times we have published series of articles illustrative, not only of the great extent of this industry, but also of the methods of cultivation and marketing adopted. Speaking generally, this vast development has been effected within the last twenty, and much of it within the last ten years. As agriculture has declined, market gardening, especially market gardening under glass, has prospered, and some at any rate, of the farmers, favourably situated for the purpose, have had the wisdom to turn their attention to the culture of flowers, bulbs, &c., for market. Of course, the ubiquitous tax-collector, and his brother who gathers in the rates, took note of this increasing property, and many have in consequence been the questions put to us as to the principle on which market gardens, and especially the glass-houses upon them, should be rated. We have not been able to give a satisfactory answer, and no wonder, since in almost every court in which the case has been argued the decision of the Judge has varied. We had thought that the well-known Purser case, reported in our columns at the time, had settled the matter, but apparently that is far from being true, and now we have what will perhaps be known as the Piper Case.

Here the question at issue is, whether glass-houses in a market garden are to be rated as "buildings," or as "agricultural land," according to the terms of the Agricultural Rates Act. A divisional court decided that the "buildings" were to be treated as part of the market garden, and rated accordingly. The Surveyor of Taxes appealed against this view, and now two out of

three members of the Court of Appeal uphold the view of the Surveyor of Taxes, and have decided that buildings are not subject to the exemptions accorded to agricultural land.

This is a great disappointment to the market garden industry; but a range of Cucumbers-houses is undoubtedly a building, and although used exclusively for trade purposes, the decision is that no "building" can be rated as agricultural land.

Probably an appeal to the Legislature may become requisite in order to modify the phraseology of the existing law. We print in *extenso* the judgment of the Master of the Rolls. Lord Justice RIGBY agreed with him. Lord Justice VAUGHAN WILLIAMS thought that although, speaking generally, buildings were not agricultural land, yet that greenhouses in nurseries and market gardens formed an exception, as agricultural land was declared by the Act of 1896 to include nurseries and market gardens. The present case is known as *Smith v. Richmond*.

THE MASTER OF THE ROLLS said:—

"The question in this case is whether glasshouses in or on a market garden are to be rated as buildings or as agricultural land under the Agricultural Rates Act, 1896.

The Court of Quarter Sessions held that the glass-houses ought to be rated as agricultural land. On appeal to the Queen's Bench Division the members of the Court were equally divided, and the appeal was dismissed, but leave was given to appeal to this Court.

The glasshouses in question are clearly buildings in the ordinary legal meaning of the word. The case stated leaves no doubt on this point.

The question turns entirely on the true construction of the Act of Parliament (59 & 60 Vict. c. 16). The ninth section contains a definition of agricultural land, but no definition of buildings, nor of market gardens or nursery grounds. The Interpretation Act, 1889 (52 & 53 Vict. c. 63), contains in section 3 a definition of land; and this word, when used in subsequent statutes, is to include buildings, unless a contrary intention appears. The Interpretation Act, 1889, contains no definition of buildings, market gardens, or nurseries.

The ninth section of the Act of 1896 clearly shows that land there cannot possibly mean or include buildings in the early part of the section; for the definition is that "agricultural land" means any land used as arable, meadow, or pasture ground only.

Market gardens and nursery grounds are, however, also declared to be agricultural land, and this is the enactment which gives rise to the difficulty with which we have to deal. The definition in section 9, however, must not be used to contradict other parts of the Act, or to introduce anomalies which the language of the enacting parts of the statute does not justify. Market gardens and nursery grounds may or may not have buildings upon them. If they have not, no difficulty arises; but if they have, then comes the question, how are those buildings to be rated? To answer this question we must look to the enacting clause, which is section 1.

Here we have "agricultural land" used in connection with, and, as I think, plainly contrasted with "buildings and other hereditaments." Similar language is used in sections 5 and 6. This express mention of buildings makes the whole statute perfectly clear to my mind; and removes the doubt caused by the use of the words "Market gardens and nursery grounds" in section 9. The only conclusion at which I can arrive is that buildings are not to be treated as agricultural land for rating purposes under this Act of Parliament.

The case of *Purser v. Worthing*, 18 Q. B. D. 818, does not, in my opinion, assist the Court in construing this Act of Parliament. That case merely shows that a market garden, *prima facie*, includes the buildings upon it used for market garden purposes. To urge that market gardens and nursery grounds do

not cease to be so because they are more or less covered with glass-houses is to urge what is quite true, but is beside the mark. The question is, how are such houses to be rated under this Act of Parliament. My answer is, if they are buildings they must be rated as such and not as agricultural land. Mr. Salter in his very able argument suggested that buildings used only for covering land which was cultivated under their protection ought to be distinguished from other buildings, and ought to be held to be agricultural land. I can find nothing to justify a distinction between one class of buildings and another for any such purpose as his argument requires. Section 5, clause c, speaks, no doubt, of buildings used only for the cultivation of land, but this clause in no way shews that such buildings or any others are to be rated as agricultural land.

The case of the L. & N.-W. Ry. v. Llandudno Commissioners, 1897, 1 Q. B. 287, turned on the construction of a provision in another Act of Parliament, and does not really assist me to arrive at the true interpretation of the statute with which we have to deal. In my opinion, the appeal must be allowed, and the orders of the Queen's Bench Division and of the Quarter Sessions must be reversed, with costs here and below."

BOUGAINVILLEA GLABRA AT MOATLANDS, PADDOCK WOOD (Supplementary illustration).

The conservatory at Mr. THOMAS BEANES' residence, Moatlands, is an unusually lofty one, as our illustration (fig. 67) shows, and offers therefore uncommon facilities for the cultivation of plants of large growth, as Palms, Musa Ensete, and M. Cavendish, tender Norfolk Island Conifers, and rampant climbers like Bougainvillea glabra, the central object in the illustration. This is just one of those glorious inhabitants of the warmer temperate regions which is seldom quite satisfactory in appearance in our glass-houses, unless in great measure it be allowed to grow unrestrained. In a big house like Mr. BEANES' it suffices for the gardener to make here and there the leading shoots secure, and to guide them into parts not yet appropriated by other plants, and to remove branches and growths that tend to render the shade too dense for the other inmates. The plant is doubtless planted out in a border of rich sandy loam, and is afforded manual aids in its season of growth and flowered. Those who have journeyed in Southern Europe and Algeria, will frequently have seen this species of Bougainvillea covering the sides and roofs of houses, with immense sheets of purplish red blossoms, looking very unlike the same plant as generally seen in our English glass-houses. The photograph from which our illustration was taken, and for which we are indebted to Dr. MORRIS, was by Messrs. Lewis & Co., Maidstone.

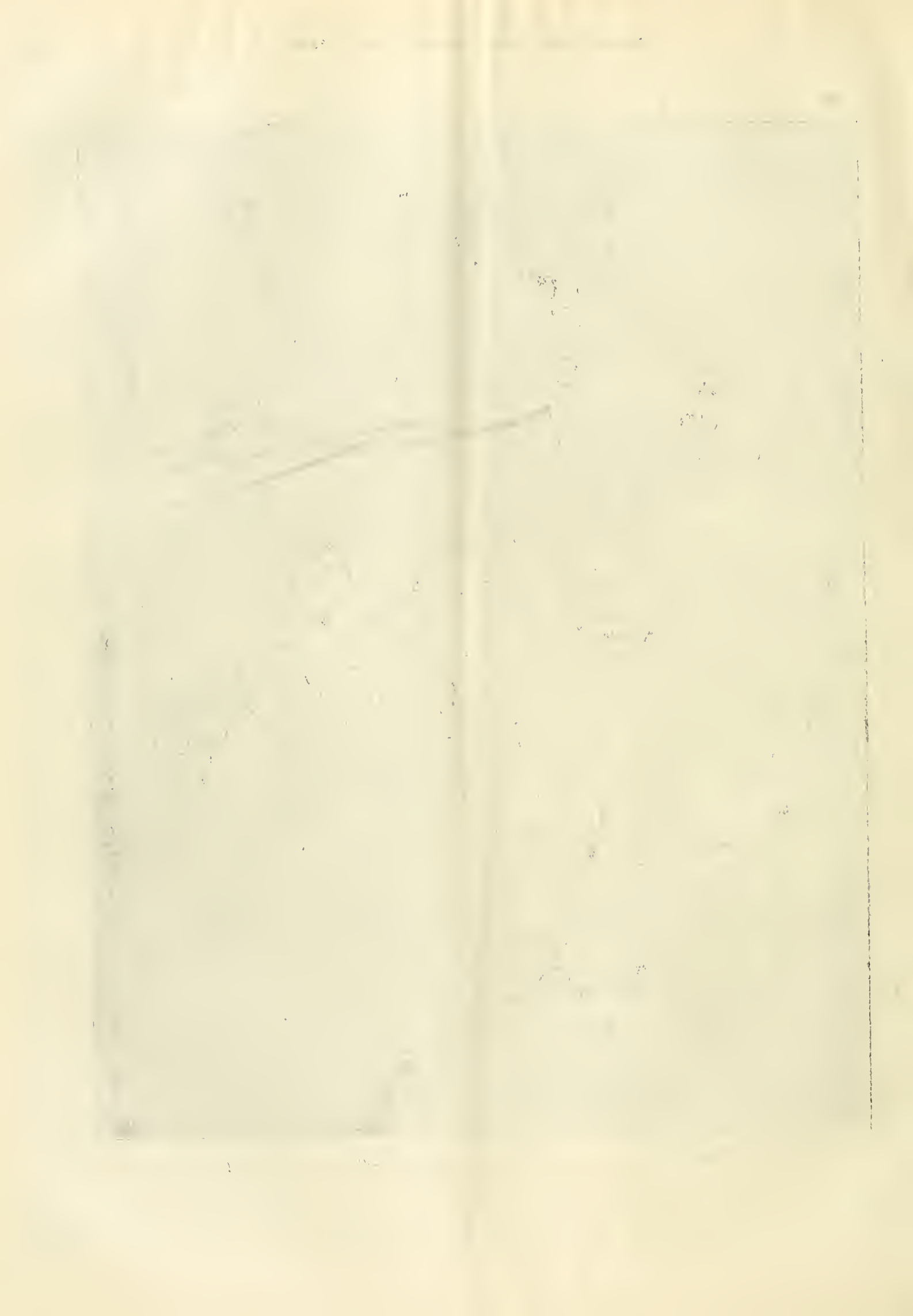
THE ROYAL HORTICULTURAL SOCIETY.—

The next Fruit and Floral meeting of the Royal Horticultural Society will be held on Tuesday, March 22, in the Drill Hall, James Street, Victoria Street, Westminster, 1 to 5 P.M.; and a lecture on "Soils" will be given by Mr. J. J. WILLIS at 8 o'clock.

—We are requested by Rev. W. WILKS, Sec., to state that since issuing the schedule of arrangements for 1898, the Society has received from Messrs. BARR & SONS, of King Street, Covent Garden, the offer of a Silver Cup for Daffodils, to be competed for at the Society's meeting at the Drill Hall, James Street, Victoria Street, Westminster, on Tuesday, April 12—open to all amateurs. Notice of entry should be addressed to the Secretary, R.H.S. office, 117, Victoria Street, S.W., and must be posted on or before Thursday, April 7. Collection of Cut Daffodils (Polyanthus section excluded), of each of the three groups—Magni-coronati, Medio-coronati, and Parvi-coronati—being represented, the flowers to be arranged in bottles which will be provided by the Society. Not fewer than forty different varieties, and not more than three bottles of any one variety, to be staged. Correct naming and elegance of arrangement will be taken into account. The winner of the 1st prize will be awarded a silver Daffodil cup, designed by Mr. H. C. Moon; and that of the 2nd prize, will receive £1 10s. and a silver flora medal (given by the R.H. Society).



FIG. 67.—BOUGAINVILLEA GLABRA IN THE CONSERVATORY OF T. BEANES, ESQ., MOATLANDS, PADDOCK WOOD. (SEE P. 168.)
(Photograph by Lewis & Co., Maidstone.)



EXPOSITION INTERNATIONALE.—We have received the schedule of an International Horticultural and Arbericultural Exhibition which it is proposed to hold in the Jardin Parisien, near the Champs de Mars, Paris, from April 21 to May 8. The Secretary is M. H. LEMÉE, 146, Boulevard de Grenelle, Paris. The names of the members of the committee are not given, whilst those of the Presidents, honorary and acting, are not familiar to horticulturists on this side of the Channel.

SIR GEORGE KING, K.C.E.I.—The last number of *Indian Gardening* that has reached us contains a portrait and a sympathetic account of the career of Sir GEORGE KING, who has vacated the post of Superintendent of the Royal Botanic Garden, Calcutta, and of the Government Cinchona Plantations in Bengal. Cinchona febrifuge, and pure quinine are now in consequence readily obtainable at low prices throughout India, to the great advantage of the community. Great improvements have been carried out in the gardens, the result being, says our contemporary, charming to the thousands of visitors who frequent them. Of the various monographs published by Sir GEORGE KING, by the authority of the Government, we can only speak in the highest terms, as they are not only creditable to the author, but confer honour on the government. A monograph of the Orchids of Sikkim, in conjunction with Mr. PANTING, is in course of elaboration.

FERNS OF NICARAGUA.—In the *Bulletin* of the laboratory of the State University of Iowa, No. 2, 1897, Mr. SHIMEK gives a detailed list of the Ferns of Nicaragua, prefacing it with a few remarks in the course of which he says that tropical America is the "Fern-paradise of the earth." The author adopts the primary sub-division of the Filices into the leptosporangiate, in which each sporangium originates from a single epidermal cell, and eusporangiate, where they arise from a group of epidermal cells. As it is only the few who can hope to be able to verify this reference, and those few only on rare occasions, it is satisfactory for practical purposes to know that the presence or absence of a ring or annulus and its modifications are available, inasmuch as they coincide (or not, as the case may be) with the distinctions observable in the development of the spore cases.

THE ALEXANDRA PALACE, MUSWELL HILL.—This building, so long tenantless, is now undergoing a process of brightening up preparatory to being opened to the public in the spring. Among the attractions likely to be provided, a series of flower shows, on an important scale, will probably be one of them. It is stated that since the last flower-show was held in the Alexandra Palace, some 24,000 houses have been erected in its neighbourhood, so there should be no lack of public support. This fact illustrates the enormous growth of London during the past few years.

PASTURE PLANTS.—Mr. W. TOOGOOD, of the Royal Seed Establishment, Southampton, has published, through MACMILLAN & Co., a *Treatise on Pastures and Pasture Plants*, which will be found a useful summary of knowledge concerning the identification and culture of pasture plants. The treatise is well got up, and has an adequate index.

PICEA OMORIKA.—When the Servian flat-leaved Spruce was first discovered, it excited great interest among botanists, as the nearest relative was in far-off Japan, or on the mainland adjacent. Dr. WEBER now supplies an interesting link in the shape of a fossil species from the quaternary beds of Saxony. This is described in ENGLER'S *Botanische Jahrbücher*, band 24, heft iv. (1898), p. 510.

"THE CACTUS JOURNAL."—Few, if any, groups of plants have greater claims upon the attention of amateurs than have, what are broadly called, Cactuses. Their strange forms, their exquisite symmetry, their adaptation to circumstances, their frequently gorgeous flowers, their manifold interest, and their generally easy culture, all furnish reasons why these plants should find favour with cultivators. Years ago they were more popular than they are now.

Then for some inscrutable reason they went out of favour, and remained so in spite of some spasmodic efforts made by individuals to renew their popularity. Again there are symptoms of a revival of interest in these plants. A Cactus Society has been formed, indeed it is nearly three years old, and now we have before us the first mouthful part of a journal to be devoted exclusively to Cacti and other succulent plants. There are always great difficulties to encounter in the preparation of a first number, which should never be looked on as a test. We presume that in this case some accident prevented the revision of the proof-sheets, and that in future more care will be exercised in the spelling of the names of plants. It will be news to botanists to learn that *Laurus nobilis*, *Camphora*, and *Cinnamomum*, are, or ever were, natives of Mexico! Photographic reproductions are well suited to bring out the characteristics of Cactuses, so that our contemporary will render good service by giving representations of the most notable species, preferably as isolated specimens, in order more perfectly to ensure the plant being in focus. We cordially sympathise with the aim and object of our contemporary, and wish it all success.

HORTICULTURAL COLLEGE, SWANLEY.—The sixth annual report of the Women's Branch is before us. From this it appears that six former students are now engaged in market gardens, eight in public establishments, nine in private gardens, three in institutions, six in teaching. Miss GULVIN, formerly of Kew, has now taken a responsible post, with several gardeners under her. Three other young women are at Kew, and two in the Edinburgh Botanic Garden.

A SCHOOL OF HORTICULTURE.—The *Revue Horticole* announces, that the department of the Loire Inférieure has received a donation of one million three hundred thousand francs (fifty-two thousand pounds) for the establishment of a school of horticulture at Nantes.

"NATURE NOTES."—Mr. G. S. BOULGER has accepted the editorship of *Nature Notes*, the April number of which magazine will be the first to be published under his directorship. Mr. BOULGER'S botanical work must be well known to our readers, and there is every reason to hope and believe that the Selborne Society's publication will glean much benefit from the services of so experienced an author.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held on Monday, March 21, 1898, when a paper will be read by Mr. H. M. GRELLIER (Fellow), entitled "Tithe Rent Charge Recovery." The chair will be taken at 8 o'clock. Members hoping to join the party at Manchester, on April 20 and 21 next, are requested to fill in and return, at their convenience, the flyer attached to the circular-letter forwarded to them on the 7th ultimo. As regards the excursions, it should be noted that the only two that can be combined are the visit to the Sewage Works and to the cotton mills. Each of the other visits or excursions will occupy a whole day.

THE GENUS CYCLAMEN.—Dr. F. HILDEBRAND, Professor of Botany in the University of Freiburg in Brisgau, has issued a monograph of the genus *Cyclamen*. It is published by GUSTAV FISCHER, of Jena, and may be had of Messrs. WILLIAMS & NORGATE. Thirteen species are described, unfortunately wholly in German, and to the description of the species is added a detailed account of the life-history and mode of growth of the plants. Six lithographic plates serve to show the structural details of each species. The great variations that are now showing themselves in the ordinary *Cyclamen*, *C. latifolium*, are the more remarkable, in that they occur in individuals derived from one species without any hybridisation. The species are:—*persicum*, Miller; *europaeum*, Linn.; *repandum*, Sibth.; *balearicum*, Rehb.; *cilicicum*, Kotschy; *alpinum*, *ibericum*, Coum, Mill.; *cypricum*, Kotschy; *africanum*, Boissier; *græcum*, Link.; *neapolitanum*, Tenore; and *Rohlfianum*, Ascherson.

THE UTRECHT BOTANIC GARDEN.—The Utrecht Botanic Garden is under the direction of

Professor F. A. WENT, and the curator is M. J. K. BUDE. In the houses of the above institution there is a fine collection of Filmy Ferns, including *Trichomanes radicans* and *Todea superba*. In the orangery are *Schefflera digitata*, Forst (Aralia Schefflera Spreng), 13 feet high by 5 feet 5 inches in diameter; *Dicksonia antarctica*, a fine *Chamerops excelsa*, *Dammara robusta*, with its strange and characteristic leaves; *Ruscus androgynus*, a very fine *Litsea japonica*, some *Alsophila*, *Acacia*, *Myrtles*, &c. In the propagating-house, I noted *Calyptrotrone Swartzii* and *Homalomena album*, sent from Buitenzorg; *Anemia phyllitidis*, seedlings of *Bilbergia nutans* × *Tillandsia Lindenii*, one of which, with drooping leaves, has a very ornamental appearance; and, in the tanks, *Cladophora agagropila*, which grows wild in the marshes in the environs of Groningen. Many specimens of Mr. Lynoh's *Cinerarias* (mentioned in the *Gardeners' Chronicle*) attract attention, owing to their value as cut flowers. Among numerous climbing plants here are *Passiflora Raddiana*, from Brazil, remarkable for the duration of the blooming season. The first flowers opened on April 17 last year, and, with some interruptions of eight or ten days, they did not cease appearing until the end of December. Sometimes, according to M. BUDE, there were from forty to fifty blooms open at once. I would also mention *Rivinia laevis*, but, like *R. humilis*, with orange instead of red fruits. In the large orangery I found still in bloom *Chrysanthemum L'Ami Cayeux*. There were also very fine plants of *Cinnamomum camphora*, *Quercus Suber*, *Chamerops humilis*, *Eugenia rubricaulis*, *Witsenia corymbosa*, and *Greigia sphacelata*. In the tropical-house is a glazed case containing *Macodes petola* and *Anectochilus Dawsonianus*, as fine and vigorous as I have ever seen, and very creditable to the grower. I noticed also *Lycopodium dichotomum*, *Macodes javanica*, and a leafless Orchid, perhaps unique in Europe, *Taniophyllum Zollingeri*. Mr. BUDE has succeeded in fertilising *Anectochilus Dawsonianus* with *Macodes petola*, and gathered many seeds, none of which has yet germinated; also *Phalaenopsis amabilis* with *Oncidium papilio*, which has resulted in a fine seed-pod; and *P. amabilis* with *Stanhopea tigrina maxima*. In the same house are *Lycopodium hippuris* and *Phlegmaria Carludovic incisa* (a fine specimen), *Clavija ornata* in fruit; a remarkable plant of *Picanga Kuhlii*, *Gnetum guemoui*, *Alocasia cuprea*; *Liparis Rheedi*, unique in Europe; *Ophioglossum pendulum*; very large and fine *Nepenthes*, an interesting hybrid from *Vanda tricolor* by *Macodes petola*, *Phenacophorum seychellarum*, *Cinchona Ledgeriana* from seedlings raised at Utrecht, *Coffea liberica*, and many economic plants. In another house is a specimen of *Cycas glauca*, with fifty-six leaves. There are also *Stanhopea tigrina* with wonderfully healthy leaves; grand specimens of *Oncidium sphacelatum*, *Phaius grandifolius* of unusual vigour, *Crinum augustum*, *Ceratostamia Miqueliana* (Miquel was Professor at the Utrecht University), *C. brevifrons* × *robusta*, a seedling three years old, very graceful, with twelve leaves and likely to prove a valuable market plant being both elegant and sturdy; *Livistonia moluccana*, *Musa sapientum*, *Cycas revoluta*, some *Bromeliads* and *Dioon edule* are also there. In the Palm-house the following are worth special mention: *Dracaena Draco* var. *Boerhaavi*, a fine *Acanthorhiza aculeata*, *Phoenix rupicola*, *Bambusa arundinacea*, *Enephalartos Lehmanni*, *Pritchardia Martiana*, *Marattia alata* and *sorbifolia*, *Howea Forsteriana* of exceptional size, two very large *Phoenix reclinata*, and *Cereus peruvianus* 22 to 26 feet long. *Ch. De Bosschere*.

"THE ROSE GARDEN."—Mr. W. PAUL has published a supplement to his well-known book on this subject. It comprises a list of the new Roses introduced since the last edition was published in 1888. In so doing he has laid special stress on what are now called garden Roses, in contradistinction to those which adorn the exhibition tables. In the one case the object is to obtain what is considered a perfect flower; in the other, the aim is to secure the most pleasing effect of which the Rose-bush itself is capable of yielding. The author takes a middle course in reference to the value of the Manetti stock,

considering it as much underrated as once it was over esteemed. The advance in Tea Roses, and those of the Polyantha section, is recorded, and mention made of the Rugosa section and the hybrid Sweet Briars. The fugacious nature of the latter is alluded to, and furnishes thus a hint which Rose-raisers will do well to note. No fewer than 229 varieties are enumerated in this supplement.

VARIATION OF COLOUR IN A HYACINTH.—

Through the courtesy of Messrs. JAS. CARTER & Co., our attention has been directed to a "sporting" Hyacinth. The variety is Charles Dickens, and its normal colour is deep blue. The plant in question has produced two fine flower-spikes, and the blooms upon one of these are rosy-pink; the other spike, though less altered, exhibits a modification in the blue, the segments of each bloom being very irregularly marked with pink. There has been a complete change of colour therefore in the flowers upon one spike, and a partial change in those on the other. A Hyacinth that would produce several flower-spikes of different colours, would doubtless prove to be valuable. In this case the variation appears to be progressive, and it is likely that another season the whole of the flowers would be pink. We believe that Messrs. CARTER intend to watch the possible vagaries of the bulb in the future.

HORTICULTURAL CLUB.—The usual monthly dinner and *conversazione* was held on Tuesday, the 5th inst., when the chair was occupied by Mr. HARRY J. VEITCH; the Chairman, Sir JOHN LLEWELYN, who hoped to be present, being detained by important business in the House of Commons. A valuable paper was read by Mr. J. A. GAMMIE on the "Cinchona in India," in the culture of which he had been engaged for many years in the Bengal Presidency. He described the various species of Cinchona used, the method of cultivation, and the means adopted through the agency of the Post Office for the distribution of the drug to the various fever-stricken districts. He showed how, through extended cultivation, its price had been reduced so as to bring it within the reach of all. A very interesting discussion, in which many of the members present participated, followed, and a portion of this very interesting paper is published in the present issue.

ROSE SHOW FIXTURES IN 1898.—June 15 (Wednesday), York (three days); 16 (Thursday), Colchester; 23 (Thursday), Bath (N.R.S.); 25 (Saturday), Windsor; 28 (Tuesday), Southampton (two days), Sutton, and Westminster (R.I.L.S.); 29 (Wednesday), Canterbury, Croydon, and Richmond (Surrey); 30 (Thursday), Eltham, Gloucester, and Norwich; July 2 (Saturday), Crystal Palace (N.R.S.); 5 (Tuesday), Harrow; 6 (Wednesday), Farnham, Hanley (two days), Redhill (Reigate); 8 (Friday), Ulverston; 12 (Tuesday), Wolverhampton (three days); 13 (Wednesday), Newcastle-on-Tyne (three days); 14 (Thursday), Halifax (N.R.S.), Canterbury (Hospital Fund), and Helensburgh; 26 (Tuesday), Tibshelf. The next list of fixtures will appear early in April. In the meantime, Mr. MAWLEY will be glad to receive the dates of any Rose-shows (or other horticultural exhibitions where Roses form a leading feature) for insertion in that list. Mr. MAWLEY'S address is: Rosebank, Berkhamsted, Herts.

TASMANIAN APPLES.—The offices of the Orient Steamship Company send us information respecting the movements of their ships as follows:—The *Cuzco* is due here on April 2, with 10,000 boxes of apples; the *Oruba* on the 16th; the *Ormuz* on April 30; the *Austral* on May 14; the *Ophir* on the 30th. These are the time-table dates, which in some cases may be anticipated by a day in the actual arrivals.

NATIONAL AURICULA AND PRIMULA SOCIETY (Southern Section).—The twenty-first annual report of this society, which has as its president Sir JOHN T. D. LLEWELYN, Bart., M.P., and as honorary secretary, Mr. T. E. HENWOOD, Auricula Villa, 16, Hamilton Road, Reading, has been issued. The financial statement discloses a total income for the year 1897 of £87 17s. 3d., with a satisfactory balance

in hand after the payment of all expenses of £16 14s. 9d. The committee report a most successful season, a large increase of membership, and an improved monetary position. A list of the prize-winners, and names of their flowers shown at the Drill Hall, James Street, Westminster, on April 13, 1897, together with the conditions for exhibitors at the forthcoming show on April 26, are appended to the report.

THE GARDENERS' BENEFIT SOCIETY.—We would draw the attention of our readers to the report of the annual meeting on p. 174 of the United Horticultural Provident and Benefit Society. The advantages offered by this society are such as should commend the institution to gardeners generally, but especially to the younger members of the profession.

THE LONDON WHOLESALE FRUIT AND POTATO SALESMEN'S AND GROWER'S BENEVOLENT SOCIETY.

—The sixth annual dinner of this society took place on the 15th inst. at the Holborn Restaurant. The Right Hon. the LORD MAYOR in the chair, supported by the Hon. W. F. D. SMITH, M.P., Lieut.-Col. PROBYN, J.P., L.C.C., and Mr. HARRY LAWSON, L.C.C. There was a large attendance of salesmen from the different London markets, and a good many visitors, the company numbering in all over 220. The LORD MAYOR pleaded eloquently for contributions to this deserving charity; and Mr. GEO. COLEMAN, chairman of committee, in responding to the toast of "The Society," asked specially for annual subscribers amongst members of the trade, as there were several candidates who were unsuccessful at the last election. The sum announced as collected at the dinner amounted to £338, which included a contribution of £100 from the Duke of BEDFORD. This is the second donation the society has received from his Grace. There was a good selection of music, and the evening passed off in a very pleasant manner.

PUBLICATIONS RECEIVED.—*Koleczwar Botanic Garden Catalogue of Seeds*, offered in exchange. Dr. GY DE ISTVANFFI is the director of the garden.

PLANT PORTRAITS.

BOMAREA CARPENTERI, Mast.—*Revue de l'Horticulture Belge*, March.

CANNA M. VIDAL, segments yellow, with a deep central blotch of red, and spots of the same colour.—*Revue de l'Horticulture Belge*, March 1.

DENDROBIUM SUBRODERIANUM.—*Gardeners' Magazine*, March 5.

DICENTRA FORMOSA.—*Mechanics' Monthly*, February.

HELECCUS MANIHOT.—*Garden*, Feb. 12.

PEAR, RENÉ DUNAN.—*Bulletin d'Arboriculture*, &c., February.

ROSA ALTAICA.—*Garden*, Feb. 26.

ROSA TOMENTOSA WOODSIANA.—*Garden*, Feb. 26.

ROSE CRIMSON RAMBLER.—*Rosenzeltung*, February.

ROSE GILLEMOT (Tea).—*Rosenzeltung*, 1 December.

ORIGIN OF THE GANDAVENSIS GLADIOLUS.

It was the late Mr. Louis van Houtte, the well-known Ghent nurseryman, who gave this name to a hybrid Gladiolus offered for the first time to the trade by him in the year 1841. I have before me Mr. Van Houtte's catalogue No. 6 (autumn, 1841), in which he offers Gladiolus gandavensis as the novelty of the year, at 25 francs (5 dols.) for medium-sized, and at 70 francs (14 dols.) for very strong bulbs. The first coloured plate with elaborate description appeared in the *Flore des Serres*, March, 1846, where the hybrid is stated to have originated from a cross between the Cape species, Gladiolus psittacinus, and G. cardinalis, in the gardens of the Duke of Aremberg, at Ghent.

This Gladiolus gandavensis created a sensation, but was soon surpassed by numbers of seedlings, which have since been offered under fancy names. A complete collection of gandavensis hybrids from 1841 to the present day would embrace many thousands of named varieties, some fifty and more new names being annually added by various raisers. The old varieties, with a few exceptions, are entirely aban-

doned now, and the standard of the whole section is still improving from time to time. The old type of 1841 is still used as a cheap bedding variety, although it is rather poor compared with the majority of other cheap varieties.

The term "gandavensis" nowadays refers to the whole section; but when no varietal name is added, the old type is meant.

More recent sections of late-flowering garden Gladioli have been termed Lemoinei, nanceianus Childsii, &c., which all have their distinct characters relative to their origin. *Ernst H. Krelage*, in "American Gardening."

ALPINE GARDEN.

NEW AND RARE PLANTS FOR ROCKERIES.

(Continued from p. 50.)

Draba repens.—From the alpine regions of the Caucasus comes a charming little plant rarely found in gardens, although another species is often cultivated under the same name, a creeping plant covering the ground with prostrate branches bearing pretty oblong-lanceolate leaves. This *Draba* has, from May to July, numerous conspicuous yellow flowers arranged in small erect spikes. It requires a rocky position and sunshine.

Draba tridentata, also from the Caucasus and the mountains of Armenia, forms pretty and often close tufts spreading over the ground; the leaves, as is rarely the case with *Draba*, are terminated by two or three more or less sharp teeth; the flowers are rather large and of a beautiful yellow, nearly orange-colour. The plant requires sunshine.

Then there is a third species of *Draba*, also of oriental origin, known as *D. scabra*. The seeds of this were brought us from the Circassian Mountains in 1892 by MM. Levier and Sommer. This is the prettiest *Draba*, forming rather spreading tufts over the ground, with deep green foliage, shining needle-like leaves, somewhat suggesting that of Junipers. The flowers are of a beautiful yellow colour, appearing in succession from April to July, and again in the autumn. The plant requires to be grown in a cleft in the rock, and to be exposed to the sunshine.

Epilobium luteum.—I do not know if this curious and beautiful species is cultivated in England. I have nowhere met with it, and its introduction here was due to M. Joseph Velely, of Vienna. It is a small perennial species with erect stems nearly four inches high, furnished with broad amplexicaul leaves, and bearing numerous and very large straw or canary-coloured flowers; a rare if not unique tint amongst *Epilobiums*. This plant is from the Rocky Mountains; we have grown it since 1887, but have never entirely acclimatized it owing to the cold of our winters—it should be hardy in England. In any case the beauty of the flowers and its rarity entitles it to a place in our rockeries. It requires cool moisture, and not too deep shade; it is easily multiplied by dividing the tufts, or from seed.

New Zealand is rich in *Epilobiums*, and has sent us many species and varieties, the flowers of which are of no particular value with the exception of *E. melanocephalum*, with beautiful and large clear rose corollas and with graceful foliage; *E. linnæoides*, with pretty dentate leaves, really quite ornamental; *E. glabellum*, *E. lectori*, *brevipes*, *nummularifolium*, and *pedunculare*, all from New Zealand or Tasmania. They form pretty clumps for rockeries. It is dangerous to introduce *E. pubens*, which is unattractive, and spreads so rapidly as to become a pest difficult to eradicate.

Erigeron compositus, from the Rocky Mountains and clefts in the rocks of Arctic America, is remarkable in that the leaves are cut and divided like those of a *Chrysanthemum alpinum*, or of an *Anthemis*.

Erodium cheilanthesifolium from the rocks forming the summits of the Sierra Nevada at an altitude of between 5,000 and 8,000 feet, a pretty tufted species, with a thick rhizome; leaves deeply cut, greenish; flowers large and white striped with purple, with two black spots on the two superior petals. This plant requires a sunny place on the rockery.

E. daucoides, from the calcareous rocks of the Sierra Nevada, about 6,500 or 7,000 feet in altitude. The plant is remarkable not only for the appearance, but for the perfume also of the leaf, which resembles that of the Carrot. It forms denset tufts of verdure, from which rise the flower-stems bearing graceful umbels of bright carmine flowers. This species flourishes in all soils, but prefers a calcareous and sunny spot. In the garden of the Linnaea, at Bourg St. Pierre (4,600 feet altitude), it sows itself freely; while at Geneva it yields but few seeds, though, it is true, we grow it here in too deep shade, the plant being a sun-lover.

E. Olympicum, is a plant introduced by Boissier about 1840, but rarely seen in gardens though ornamental, forming large tufts of greyish foliage, whence rise in summer and up to the winter, numerous flower-stems. The blossoms are large, rather bright mauve, an unusual colour for an *Erodium*. This species has not seeded with us, nor with M. Barbey at Valeyres, so the only means of propagating it is by cuttings, as with zonal *Pelargoniums*. The

pyrenaica superba, introduced in 1884, which has flowers double the size of those of *S. o.*, and a more erect and compact habit, and in colour it is rosy-lilac. The form was described in the *Gardeners' Chronicle*, vol. xxi., new series, p. 419. *S. o. major* is merely a form whose flowers are bigger than the type, but it is not nearly so fine as the preceding. A white form, *S. alba*, is identical in every respect, except in colour; *S. o. splendens* has rosy-purple blossoms, and is the Welsh form of the species. The various species succeed when planted in moist sandy loam, in chinks and on ledges of a rockery; it will also grow well in peat. *E. S., Woking.*

NURSERY NOTES.

MESSRS. W. L. LEWIS & CO.

BRAZILIAN Orchids are a great feature at this Southgate establishment, and *Cattleyas* and *Lælias* are especially fine, plants of *L. purpurata* being very profusely set with flower-sheaths. Among them are

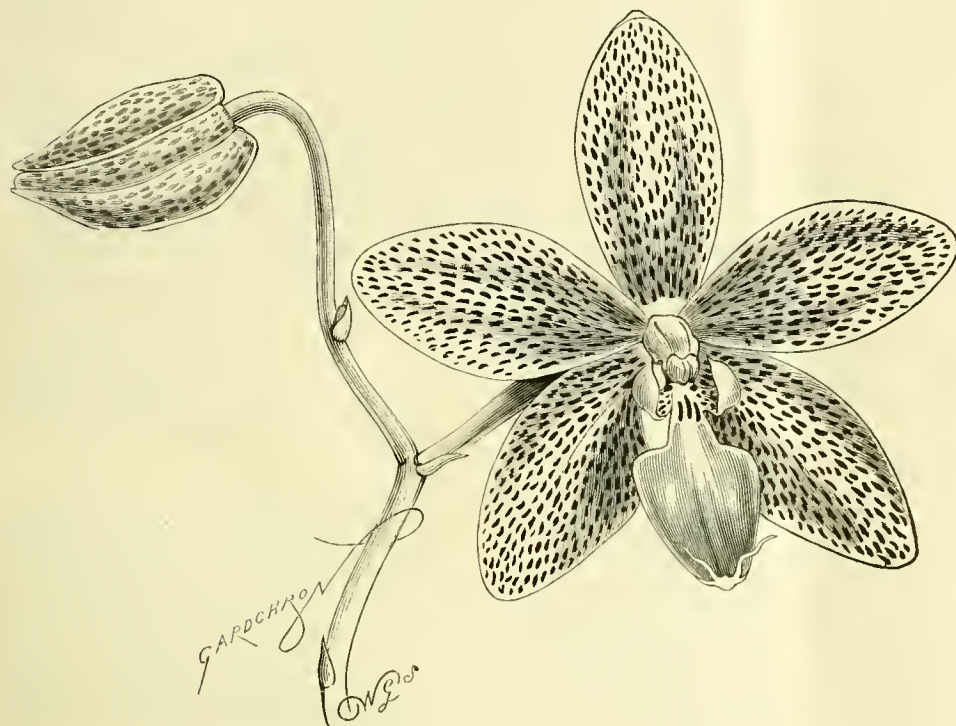


FIG. 68.—PHALÆNOPSIS × J. SEDEN.

triumphans, and the remnant of the fine strain of *Lælia pumila*, introduced by the firm, which was often shown and greatly admired during the past year.

Varieties of *Dendrobium nobile*, and other *Dendrobies*, made a fine show, and in a warm Orchid-house were noted specimens of *Phalaenopsis*, some of *P. Schilleriana* being in bloom. Here, as in some other gardens, the only place in which *Phalaenopsis* thrive satisfactorily is this little-warm house, which is entered from another glasshouse, and has no other entrance. Among *Cypripediums* in bloom were remarked *C. Victoria Marie*, *C. exul*, *C. Calypso*, *C. leucorhodium*, *C. Mastersianum*, and in bud a promising hybrid between *C. bellatulum* and *C. callosum*—probably a variety of *C. × Wottoni*. In another house we noted a fine display of plants of *Odontoglossum crispum*, some of them being in flower; and others were *O. Andersonianum*, *O. Oerstedii*, *O. tripudians*, *O. Hallii*, &c.

A good show of *Odontoglossum Rossii majus*, and others of the smaller-growing species, was observed in another house, and coming into bloom a strong plant of the *Habenaria Bonatea*, a *S. African* terrestrial species, going generally under the name of *Bonatea speciosa*.

PHALÆNOPSIS × JOHN SEDEN.

THE flower illustrated at fig. 68 was shown by Messrs. Jas. Veitch & Sons at a meeting of the Royal Horticultural Society on the 8th inst. *Phalaenopsis* × John Seden was raised from *P. Luddemanniana* × *P. amabilis*, Bl., and two plants were flowered some years ago (see figure in *Gard. Chron.*, Mar. 17, 1888, p. 332). The plant now in flower, however, was raised from another batch of seed sown in 1891. The sepals and petals are of a bluish-white tint, profusely and evenly spotted with crimson; the bases of these segments, and especially of the petals, are of a bright rose hue. The side-lobes of the lip are rose-coloured, spotted with red, and tinged with bronzy-yellow. The middle-lobe of the same is of a yellowish-bronzy hue in the centre, and rose-coloured at the apex—a very handsome-flowered hybrid indeed.

HOME CORRESPONDENCE.

THE WHITE JERUSALEM ARTICHOKE.—Having had some experience with the white variety of Jerusalem Artichoke, I would advise those who may be contemplating its introduction, and destroying the old one, to refrain from so doing. At about the time when tubers were being formed on our plants of the white variety last summer, I noticed here and there a stem which had turned mouldy near the base, and for 1 foot or more upwards; these plants died, and during the remainder of the season others continued to be attacked, although a good many remained apparently healthy. On lifting the tubers some of the attacked plants were destitute of tubers, and others had only a portion of a crop, and there were many diseased tubers, whilst others had a full crop. I stored about 5 bushels of tubers which looked sound, but to-day I have not a dozen sound tubers left, though not any have been consumed. It is a significant fact that of two rows of the old variety grown on the same plot of land none was diseased, and no tuber has been attacked since. The disease, which I have since been told is a form of the fungus known as *Peziza sclerotiorum*, I recognise as being the same thing which invariably attacked a portion of a row of annual Sunflowers that grew year after year on the same spot in another garden a mile away; and I have found it, too, on individual plants here, but as these were few in number, very little notice was taken of it. Now, I am inclined to consider this species of fungus a most dangerous one, that must be got rid of. On the tubers in store it begins to spread as a white mould near the point of detachment from the roots, and soon afterwards the entire tuber becomes a decaying mass. [See *Gardeners' Chronicle*, Sept. 15, 1883, p. 333, fig. 50. Why do you not dress the tubers in store, and also the plants when in growth, with the Bordeaux Mixture? Ed.] J. C. Tallack, Livermere Park Gardens, Bury St. Edmunds.

THE ROYAL HORTICULTURAL SOCIETY'S AWARDS.—Whether either of the communications published last week on this subject add much to the

plant comes from the rocks of Greece and the East. It likes a sunny place on the rockery.

E. pelargoniflorum comes from the rocks of Mount Ghelipel (Cilicia). It has soft foliage, resembling that of *Erodium hymenoides*, but the leaves are erect; the flowers smaller, and much spotted with purple. It requires a deep cool soil, and a sunny or semi-sunny position. *H. Correvon, Jardin Alpin d'Acclimatation, Geneva.*

SAXIFRAGA OPPOSITIFOLIA.

On the rockery this pretty species and its various forms are now in flower, and although not new plants, they are not so often seen in our gardens as they deserve, if we consider their hardiness, and the simple methods of cultivation demanded. The typical species, *S. oppositifolia*, is British, but one that is rarely found in a wild state, although Dr. Hooker in his *Students' Flora* mentions it as being found in Wales, in the Highlands of Scotland, in the North and North-west of Ireland, as well as throughout Southern Europe. The flowers, solitary, are borne in profusion, on creeping leafy stems, about 6 inches long, and in colour they are deep purple. The several forms are superior to the type in depth of colour and in size. The best are doubtless *S. o.*

two plants derived from the same mass as that which produced the fine *L. purpurata* Lewisii—the nearest to a white form of any of the varieties. A large number of *Lælia tenebrosa* will form a fine display in the summer, and some *L. cinnabarina*, *L. harpophylla*, and good varieties of *Cattleya Trianaei*, are now in flower. Among a large number of *Cattleya Mossiae*, about to flower for the first time, are imported plants, reputed white varieties, as well as some white *C. Luddemsnians*, said to be of the *C. L. Schroderiana* and *C. L. alba* type, all of which they prudently determined to retain until the plants bloom. There are also in this house some noble specimens of the true *Oncidium ampliatum majus*, which have large and stout flower-spikes, some of them numbering from twelve to eighteen branches. Plants of *Cattleya Mendeli* were noted to be well furnished with flower-sheaths; and plants of *Oncidium sarcodes*, *O. Marshallianum*, and *O. varicosum*, possessed very large pseudo-bulbs. Among plants in flower there were *Schomburgkia undulata*.

The Mexican-house furnished a display of *Oncidium spilopterum*, whose spikes of yellow and purple flowers make it a handsome cool-house species; some pretty *Odontoglossum Pescatorei*, some large-bulbed *Oncidium concolor*; *Cattleya citrina*, *Odontoglossum*

discussion that is valuable or not, at least they serve to show that the matter has aroused considerable interest. I am personally concerned with that of "Looker-On," and only so far as he makes reference, a very mistaken one, to my recent proposal, that awards of certificates, &c., should be made only by a two-thirds majority of the members present. That is a sensible proposal, because the object is to secure for any award a majority that shall command respect. To assume that an award carried by, say, six votes to four out of a total of twenty members present is proper, is indeed absurd. But there is not a word in my proposal making it compulsory on any or all members to vote. If they do not care to vote, no power can compel them, although refusing to do so is practically admitting indifference or ignorance. All I ask is, that at least two-thirds of the members present shall vote aye before any award of certificate, &c., can be made. If there be at a committee eighteen members present, an average number, at least twelve must vote for, although the other six may not vote at all, or, if they wish, against. In what respect is that an unwise suggestion? The assumption that such a rule would remain a dead letter is based on ignorance of what is required. It is a rule that should be adopted in all cases. It is the rule where three judges have the awarding of prizes of exceeding value, and surely it is not too much to ask that it may be the rule of the committees. *A. D.*

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Seeing so many remarks lately respecting the above institution in the pages of the *Gardeners' Chronicle*, it has occurred to me that there must be a large number of gardeners who do not understand the scope of this Society. 1st. As to its name. It is called the Gardeners' Royal Benevolent Institution, not the Gardeners' Benefit Society; consequently all gardeners who can substantiate their claim to be gardeners are eligible to its benefits (see Rule 2, "Persons eligible"). 2nd. The object of the Institution is to relieve distressed horticulturists, as nurserymen, gardeners, market growers, and seedsmen. 3rd. I believe far more subscribing gardeners are relieved than are paid for by gardeners. There are about 620 gardeners who subscribe £1 ls. annually; there are 571 gardeners who have given £10 10s. and are life subscribers, which brings in at 3 per cent., about £180 per annum, making a total of about £831 per annum. There are about 161 pensioners on the list, and who are regularly receiving their pensions at a cost in pensions only of £2,757; the office or other expenses are included in this amount. 4th. What would become of the distressed gardeners if the above £831 subscriptions from gardeners only were available? It must be borne in mind that even that sum would be greatly reduced by office and other expenses; the whole sum could not be used as pensions. It is consequently necessary to allow those who so generously subscribe so largely to the funds to give their votes to those for whom they may have a fancy. I grant it in some cases brings about what seems to be and is, a hardship. But how can it be prevented without creating a worse evil? As one of the members of the committee, I can say everything that we can do is done, and every case is well looked into, and I believe fairly put in the list of applications, so that no one has a bias or preference as from the committee. The only real and permanently effectual cure for an admitted evil is for all gardeners to become members, then they could always vote in all those who have been subscribers. *Wm. Denning.*

ROYAL GEORGE APPLE.—On p. 129 of the *Gardeners' Chronicle*, Mr. N. H. Pownall's high opinion of this Apple verifies its good late properties and beauty, and agrees with my own in regard to it. It is interesting to learn the name of the place of its origin. It would help gardeners before cancelling the old name and adopting a new one, if Mr. Pownall could ascertain the year of its first coming into commerce, and if it was at that time known as Clarke's Seedling. In the *Gardeners' Chronicle* the week following, Mr. Goodacre's remarks had some instructive notes on the variety. In seasons of scarcity, I have, in April, paid 5s. per peck for apples sold under this name by growers living near Nottingham, which came wrapped in paper, and I was told that the fruit was stored in that manner. I have seedlings raised from this variety. It is a difficult matter to get a correct list of Apples raised early in the present century, with descriptions and date of introduction. None is more trustworthy than Thomas Knight's and McIntosh's, and the last-named cultivator verified many of the names of fruits from

the London Horticultural Society's lists before publishing his information. I will quote from the most modern of these lists, published 1828, in Mr. McIntosh's *Practical and Modern Horticultural List*, vol. i., where 250 varieties of Apples are described, on p. 459. No. 114 of this List is Royal George; Clarke's Seedling is, however, not mentioned. In another very trustworthy work, embellished with beautiful drawings of subjects from nature, viz., *Flora and Pomona*, by Chas. McIntosh, C.M., C.H.S., the plate of Kirk's Scarlet Admirable shows a fruit that exactly resembles Gascoyne's Scarlet Seedling, and the name is doubtless merely a synonym. Another valid reason for raisers to carefully tabulate the parents of the fruit they raise. I thank Mr. Goodacre for putting me right in the matter of the name Newton Wonder, for I was incorrectly informed that Mr. W. Taylor, of King's Newton, Derbyshire, was the raiser. King's Newton and Stanton are neighbouring parishes. *George Bolas, Hopton Hall, Wirksworth, Derbyshire.*

THE CROCUS IN THE SPRING GARDEN.—It is worthy of note that the yellow spring Crocus (*C. aureus*) appears to be much more lasting than the white, violet, and striped varieties of *C. vernus*. The flowers of the former appear to be shorter in the corolla, and the petals stouter in texture, than those of the forms of *C. vernus*. They come into bloom first, and they last beyond the time when the others are fading. Moreover, the blossoms are less affected by rain. I have examined a large bed of Crocuses to find that immediately following a sharp storm of sleet and wind, the flowers of the white, striped, and blue varieties were much more damaged than those of the yellow. The yellows, three days after, are brilliant in their golden tint. Alas! the others went down before the storm like nine-pins, never to rise again. Then I think it will always be found that for permanent plantations the yellow is much more to be depended upon. I made a permanent plantation twenty years ago; the yellows remain, and appear to flourish as freely as ever. I am giving my own experience, and if it is general, it points to the fact that *C. aureus* is most to be depended upon for permanent edgings. And let me add, the original planting should always be done in the best manner to ensure this continuity. *R. D.*

THE COLOUR OF DAFFODILS IN RELATION TO THE SOIL.—We are familiar with the effects of different soils and chemicals on the colour of the flowers of *Hydrangea hortensis*. Through the insertion of iron nails, iron rust, steel filings, common alum, green vitriol, into the pots or root-runs of *Hydrangea*, the colours of the flowers are more or less changed from purple to blue. It was never, however, made very obvious why solutions of common alum favoured the change to blue more than sulphates or salts of iron. At the last meeting of the Botanical Society in Edinburgh, Dr. Aitken read an interesting paper on the colour of flowers as affected by the character of the soil in which they grow. After referring to the generally known facts in relation to the *Hydrangea*, Dr. Aitken quoted Mr. Barr, the greatest of our Daffodil growers, as testifying to having noticed that Daffodils possessed a much deeper tint when grown on some soils than when grown on others. It has also been noticed by other cultivators that on some peats *Hydrangeas* come blue without either alum or salts of iron, and that Daffodils and other bulbs are considerably modified in colour. Mr. Barr had sent three samples of soil to Dr. Aitken, who analysed them, and exhibited the results of his analysis. The palest Daffodils, having a sulphur-yellow colour, were grown on the poorest soil, and the deepest-coloured were grown on the richest of the three soils, but it did not appear that the differences of colour were due to the abundance or otherwise of any one constituent of the soil. At the same meeting, at which Dr. Semple presided, a communication, with lantern illustrations, was read by Mr. R. Turnbull on *Apodya lactea*, one of the *Saprolegniaceae*. *D. T. F.*

OTHER LITTLE GARDENS.—Mr. Harry Roberts, the writer of the interesting "Little Cornish Garden" articles, says that "plants in pots savour too much of the pet-bird idea." But there is one charm in pot plants which is not possessed by the planted-out plants. They can be brought into the house, and enjoyed while resting from the labours of the garden, which means a great deal; moreover, in rainy and cold weather, when one would be glad of a comfortable seat near the fire, pot plants will greatly help to keep him or her in company. Then he says he has planted Crocuses and Primulas, but he might

have added how he defends these beautiful things against the attacks of birds. He says, "Primulas are among the easiest plants to grow;" so I also had thought, and therefore I planted some 150 clumps, thinking I would make a lovely edging to some borders of Primulas and Polanthuses. Many of them were in flower when planted, and so I arranged them so that their flowers might make a pretty contrast. Well, the beautiful contrast was exhibited next morning, for every flower and every flower-bud without exception, was lying on the ground round each plant, just as dead soldiers lie on the ground the morning after a great battle! The suspicion of this havoc fell on sparrows, which I see chasing each other in the morning from my upper window. The curious thing was that they did not eat them, but picked them off and threw them about as if it were from mere mischief. Now can Mr. Harry Roberts suggest some remedy for all this trouble, so that my 'little garden' may not be a blank, as regards these pretty things; otherwise I would have to lift them again, and plant them in pots, which he says "savours too much of the pet-bird idea." I have often seen beds of Primulas in Hyde Park, but I never witnessed such wholesale havoc before. When I was in India, I had Amaryllises in flower in my verandah; I had also a peacock in the compound. One fine morning I found all my beautiful Amaryllis flowers wrecked by this mischievous peacock, so I bundled him away, and presented him to a friend who lived at some distance from my domain. I wish I could send away the sparrows, or whatever birds wreck my Primula flowers. Then, with regard to Crocuses, there are some interesting phenomena to be recorded. A few spontaneously came up, evidently planted by some former occupant. Some were yellow. These were immediately wrecked by the birds, while the white and purple ones did not seem to be touched. I am told that every one knows that birds destroy yellow Crocuses, yet the other day in St. James' Park I saw large patches of yellow, white, and purple Crocuses, and the yellow ones did not seem to be touched. Moreover, not far from my place I saw in a small garden, hundreds of beautiful yellow Crocuses, and only yellow ones, yet not one seemed to be touched. Can any one explain these vagaries of birds, and suggest some remedy against their mischief? *E. Bonavia, M.D., Worthing, March 14, 1898.*

THE STRAWBERRY PLANTED IN BARRELS.—A few years ago my neighbour who grows a few Strawberry-plants, observed a paragraph in a newspaper advising the cultivation of the plant in barrels, and an Apple-barrel was obtained, holes bored in the sides, and plants of King of the Earlies planted in the holes and on the top. They did well and fruited freely, but as water was scarce they sometimes suffered in consequence, and the method was eventually given up. Grown in this manner, a good deal of water is required, but where a plentiful supply is at command this would be no obstacle. *S. Arnott, Carsethorn, by Dumfries, N. B.*

GARDENIAS.—In answer to your correspondent "J. E.'s" appeal for information regarding the cultivation of *Gardenia floribunda*, *radicans*, &c., allow me to relate my methods, which if "J. E." would follow he would have little disease or canker of which to complain. I do not keep my plants longer than four years; they are pruned hard towards the last days of May, and then placed in a house having a temperature of 65° to 70° for one month, and then removed to a deep greenhouse-pit where plenty of air and full sunshine are afforded, manure-water being applied occasionally, and syringing done at shutting-up time at 12.30 p.m. The plants remain in this pit till the end of September, when removal to a house with a temperature of 55° to 65° takes place, and here they remain till in the New Year they are removed to a house with a temperature of 65° to 75°, in order to set their flower-buds, and to flower where growth is commenced. I have had a plant grown in good fibry loam and silver-sand in a 10-inch pot with 100 good blooms upon it. *W. Willatts, Lyndhurst.*

— With reference to the inquiries of your correspondent, "J. E.," whose letter is printed on p. 157, I can only suggest that the disease referred to is due to some local influence, as such cases are very rare indeed, and I do not know of a similar case. My advice would be not to replant the Pine-stove without thoroughly disinfecting with fumes of burning sulphur, all cracks and holes having been previously stopped, and care taken to place the vessel containing the sulphur

at the lowest part of the house. To make the sulphur fumes everywhere accessible, the bottom slabs of the hot-bed should be removed. If the sulphuring be performed in the afternoon, the house should remain closely shut up till the next morning. To prevent the discoloration of painted woodwork, this should be lime-washed, if practicable, prior to which a good washing with a garden-engine or the hose would not be amiss. Too frequently Gardenias are afforded too much warmth, insufficiently ventilated, and too densely shaded, or the shading maintained for too long a period. The plants previously referred to are shaded slightly with a permanent shade of lime-wash, put on in primitive fashion by means of a syringe. Gardenias need no bottom-heat, and no peat, but sandy top-spit pasture loam, six or eight months cut, and stacked with layers of stable-dung between. This should be employed in the

should be afforded. Indeed, and in this semi-stationary way, market men keep their plants through the winter. J.

HARDY PLANTS FOR FURNISHING FLOWERS FOR CUTTING.—I would ask Mr. W. H. Ward if he does not err in recommending (see p. 156, ante), without any qualification, *Alstroemeria peregrina* peregrina alba, and tricolor (pulchra) as being suited for planting in the open ground for furnishing flowers for market? These varieties are none of them generally quite hardy in this country, and are on that account unsuited for out-of-doors cultivation excepting in the warmest districts. Will Mr. Ward be so good as to give me one instance in England where the lovely *A. peregrina* alba is grown to perfection in the open air, and in quantity for market purposes? Indeed, of the whole of the species mentioned by

of soil interposed. Planted in early autumn, *Alstroemerias* are the better for being planted in beds by themselves, if the only object is cut bloom, so that they may be left for ten or a dozen years undisturbed, provided a good mulch is afforded every year after three years planted. The spring is the worst time Mr. Ward could select for planting these subjects, because even if dry roots are available, which is doubtful, these will be too greatly shrivelled to do any good this year; while if he would transplant from an old bed he will find, to his cost, the brittle nature of the *Alstroemeria* renders their extraction very difficult. Mr. Ward mentions in his article the English and Spanish Iris, Double Daffodils, but surely he does not include these things as among suitable subjects for planting in March [he does not say that. Ed.]. Daffodils are in flower nearly everywhere, and the Iris named have been, in many instances, above ground for two months past. Another unsafe plant, out of doors, mentioned by Mr. Ward is *Franea ramosa*, a half-hardy subject not suited to open air market culture. I quite agree there are plenty of good perennials suited for spring-planting, but many of these are unnoticed in Mr. Ward's rather mixed list. In a subsequent note I will give the names of some of these plants with your permission. E. Jenkins, Hampton Hill.

CYCLAMEN DEVELOPMENT.

WE give this week a figure of the most remarkable variety exhibited by M. L. P. de Langhe, of Brussels, at the last meeting of the Royal Horticultural Society. As will be seen, the flower is very large, flat, like an open umbrella, and slightly fringed at the edges. The colour was rosy-crimson. It is the most remarkable variety we have yet seen, and is not the result of cross-breeding between species, but simply a variation from *C. latifolium*.

SOCIETIES.

ROYAL HORTICULTURAL Scientific Committee.

MARCH 8.—Present: Dr. M. T. Masters (in the chair); Rev. W. Wilks, Mr. A. Sutton, and Rev. Prof. Henslow, Hon. Sec.

Phytoptus ribis.—An interesting letter was received from Miss Ormerod giving an account of what is being done experimentally at the Duke of Bedford's fruit farm at Woburn, under the direction of Mr. Spencer Pickering, F.R.S., as to the possibility of obtaining "mite-proof" Black Currants, the only result has been some plants received from Buda-Pest, which have been distributed to the Toddington fruit grounds, to Mr. Speir Newton's farm, Glasgow, and to Woburn. Miss Ormerod has given as exhaustive an account as she could form of the disease in a special appendix to her twenty-first annual report from the period of its first appearance until the present time. A series of experiments is now being set on foot at Woburn directed to every point which is open for serviceable action, including chemical applications. These will be followed by expert examinations of the contents of the galled buds treated; and with coincident examination of galled buds under precisely similar circumstances, but not treated chemically. These experiments will be found detailed in the appendix, pp. 141-158. A conclusion anticipated is that there should be "a difference in broad scale methods of growing."

Scotch Fir, Malformation.—Mr. Veitch sent a curious mass of stunted boughs, the whole resembling a hedgehog, and perhaps caused originally by a phytoptus or fungus. Dr. Masters observed that short boughs, grafted from such specimens, might be used as miniature trees, for rockwork, &c.

Sprouting Broccoli.—A remarkable specimen was received from Mr. W. P. Wright, Willesborough, Ashford, Kent, from the central and much enlarged stem of which a large number of good sized lateral shoots had appeared. It was suggested that if it be capable of being "fixed" it would probably prove a valuable acquisition.

Phytoptus on Hazel.—Mr. G. Gordon sent specimens of this well known gall, allied to the Currant-mite. The samples were received from Kent, where the Black Currant is badly infested. It was first observed at the locality on the Hazel last year. [Known in Kent from time immemorial. Ed.]

Orchid Roots with Fungus.—With reference to the specimen brought to the last meeting, Mr. Murray, of the gardens, Oakwood, Wylam-on-Tyne, writes to say that he is "convinced that it is from no other cause than from the lack of air, or, rather, of circulation of air, among the plants." In a previous communication to Mr. Douglas, he expressed agreement with Mr. Veitch's interpretation, but not quite in the manner he explained, for he observes, "I ventilate the houses day and night with the ventilators, . . . but the air upon the stages, or, rather, above the stages, when the plants are standing close together, travels very slowly, even with the ventilators open, in comparison with that around the centre staging, as plants thereon seldom show signs of fungus."



FIG. 69.—A VARIETY OF CYCLAMEN LATIFOLIUM (PERSICUM), SHOWN BY M. DE LANGHE.

rough state, as chopped from the stack. Small plants should be planted on mounds after the style as described in my previous communication. In planting do not bury the collar of the plant beneath the soil; and select plants that possess a clear stem of 6 inches high. A temperature of 60° to 65° is much better for the plants than one that is stuffy and 10° higher than these figures. Free ventilation is essential in the summer-time, and the house may be kept 5° warmer for a time after the pruning is finished, that is, as soon as the glut of flowers is over. At this time syringe the plants with the following mixture:—Two handfuls of fresh soot and one of flowers-of-sulphur, mixed together while dry, after which mix in a paste and then incorporate with water gradually and stirring meanwhile; then dissolve six ounces of soft soap in four gallons of soft water, and pour the two mixtures together, and strain through fine muslin. When growth is complete, a rather low temperature and drier atmosphere

Mr. Ward only two possess any real worth for market-growers, and these are *A. aurea* and *A. psittacina*, the remaining six species and varieties being either unsuitable in point of colour, such, for example, as the typical *A. peregrina*, with purple flowers, or are they too distinctly tender for ordinary open-air culture at all? Indeed, the whole family, including the reputedly hardy ones, require to be planted fully 6 inches below ground to render the roots secure against frost; and near London I have known hundreds of tubers planted 5 inches deep to be killed in a warm sunny spot in the open in well-drained soil. The best and most profitable of all is *A. aurea*, or *aurantiaca*, as it is sometimes named in nursery lists, which is not only the hardiest and most vigorous, but an abundant bloomer, and one that increases best. I always prefer to plant the roots of this species 8 inches deep, after digging the ground 1½ foot deep, putting a layer of well-decayed cow-manure 4 inches below them, with that thickness

Two and Three-Spathed Arums.—Mrs. Richards of West-ridge, near Ryde, forwarded two flowers, one with two spathes, the other with three, both from the same plant. They were very fine instances, and it was reasonable to expect such might prove constant. If so, a permanent form with two or more spathes would be very desirable.

Azaleo-dendron x.—A hybrid between an Azalea mollis or sinensis and a spotted Rhododendron, exhibited by Sir Trevor Lawrence, was unanimously awarded a botanical certificate. It was raised by Prof. Pynaert of Ghent.

Large Ivy Stem.—Prof. Henslow exhibited a section of Ivy some 10 by 8 inches across. It grew round a tall Holly, about 50 feet in height, at Zeals Rectory, Wilts.

Thin Apple.—A remarkable monstrosity was sent from Mr. Bar-at-Gin, 3, Praed Street. Instead of being the result of the fusion of two flowers, as occurs in Tomatoes, &c., i.e., a "syntactis" condition, a vertical section revealed the fact that they were the result of a bifurcation of the axis below, the under side of the Apple giving no signs of its being a twin.

Cypress Disease.—A specimen received from Dr. Church, having the bark split and detached and infested with fungi, was forwarded to Kew for further examination. The following report was received: "Cupressus dolabrata.—This a typical example of bark-scorching, the cortex being first led by exposure to the sun's rays, afterwards splits and forms sun cracks, and finally separates from the wood. The fungus present—Corticium lacteum, Fries—is simply saprophytic on the dead parts."

THE SHERBORNE AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

This society, which has been in existence for about four years, has 100 members, one half of whom are working gardeners. Certificates are awarded at the monthly meetings to exhibitors of excellence. At these meetings papers are read dealing in some way or other with horticulture. At a recent gathering a practical address was delivered by Mr. CROCK, Forde Abbey Gardens, Chard, on "Forced Vegetables," which was followed by a useful discussion.

NATIONAL CARNATION & PICOTEE Southern Section.

We glean from the twenty-first annual report of this society that considerable progress has been made, thanks to the generosity and untiring energy of the president, MARTIN R. SMITH, Esq., "who not only supplies the members with seeds saved from his best flowers, but also takes an important and active part in the management of the society." Last year's exhibition in the gardens of the Royal Botanic Society was not so successful as had been anticipated, the quality of the blooms being below the average, on account of the unpropitious weather prevailing, and the attendance of visitors was scanty. Special attention is called to the classes for undressed flowers, shown with a sprig of foliage only, and without cards; and to the special prizes provided by the president. The statement of accounts shows total receipts for 1897, including a balance in hand from 1896 of £238 1s. 3d., to have been £493 14s. 9d., and the expenditure £493 14s. 9d., inclusive of the sum of £208 16s. 9d. carried forward to 1898. In addition to the financial statement, the names of the winners of last year's prizes, with those of the varieties shown, a list of subscribers, and a schedule for the present year, are given. The honorary secretary and treasurer is Mr. T. E. Henwood, Auricula Villa, 16, Hamilton Road, Reading.

LINNEAN.

MARCH 3.—Dr. ST. GEORGE MIVART, F.R.S., Vice-President, in the chair. Mr. THOMAS CHRISTY, F.L.S., exhibited specimens of the Mora Nut of British Guiana (*Dimorphandra Mora*, Schomb.), of which some had been lately introduced into London by colonial brokers as the Kola Nut (*Cola acuminata*). It appeared, however, on analysis that the former contains no Caffeine, a product for which the latter is of definite commercial value. It remained to be ascertained whether the Mora Nut has any economic value.

Mr. G. CLARIDGE DRUCE, F.L.S., read a paper on the occurrence of *Carex helvola*, Blytt, in Britain, in which he gave an account of his discovery of this plant on Ben Lawers, Perthshire, in August, 1897. He found it growing in some abundance at an elevation of about 3200 feet. Prof. Blytt and Dr. Christy, to whom specimens had been submitted by agreed in naming it *C. helvola*, which by many botanists is considered to be a hybrid. Professor Blytt says that it grows with *C. canescens* and *approximata* (*lagopina*), but he has never found ripe fruit. Dr. Christy says: "Il me semble d'être une ancienne hybride fixe et plus ou moins stable." Mr. Druce could readily believe that *C. helvola* was a hybrid of which *C. canescens* was one parent, but he had more difficulty in stating definitely the name of the other. From the close resemblance borne by *C. helvola* to *C. Zahni* (an acknowledged hybrid of *C. canescens*, in one of its forms, with *C. approximata*), this combination might well be the origin of the Ben Lawers plant, but against that was the fact that the presence of *C. approximata* in the Breadalbanes had never been proved. *C. echinata*, on the contrary, was plentiful there, but Mr. Druce could see no positive evidence

of the occurrence of that species in the foliage or inflorescence. He would have expected the offspring of two plants with nerved perigynia to have exhibited that character even in young specimens; as is shown in *C. pseudo-helvola*, an acknowledged hybrid of *C. canescens* and *norvegica*. The foliage too was slightly glaucous, a character not possessed by *C. echinata*. Although the Ben Lawers plant was less luxuriant than Blytt's Norwegian specimens, Mr. Druce was unable to separate it specifically from that plant.

Messrs. F. N. Williams and W. P. Hiern offered some remarks.

THE KINGSTON AND SURBITON CHRYSANTHEMUM.

MARCH 7.—A meeting of the committee was held on the above date, and the position of the society was gone into thoroughly. The whole of the liabilities have been discharged, with the exception of what is due to the collector and assistant-secretary (Mr. W. D. Elsom), who voluntarily offered to let that stand over. It was satisfactory to find that last year's subscriptions exceeded in amount the sum received in 1896, and had the takings at the door come up to the average, with a small reduction *pro rata* from the prize money (which is provided for in the rules, and is often done at other shows), the accounts would have stood differently. As it is, the committee are determined to make an effort to wipe off the debt due to the collector, and are encouraged therein by the knowledge that the society has passed through critical periods more than once in its existence of twenty-one years. It has now been definitely fixed to hold the show on November 1 and 2, and Major Ficklin has again kindly allowed the use of the drill-hall for the purpose.

NEWCASTLE AND DISTRICT HORTICULTURAL IMPROVEMENT.

MARCH 8.—A meeting of this Society was held on the above date. There was an excellent attendance, over which Mr. JNO. BULLOCK presided.

The Certificate offered for the best six Camellias was won by Mr. O. BROWN, Oakfield, Gosforth, and special Certificates were awarded to Mr. A. MONRO, Enfield, Gateshead, for *Dendrobium Wardianum*, and to Mr. W. M. HAYES, Ferndene, Gateshead, for *Rhododendron argenteum*.

A paper was read by Mr. HAYES on the Grape-vine, and was followed by considerable discussion, particularly in regard to outdoor cultivation.

SCOTTISH HORTICULTURAL ASSOCIATION.

MARCH 9.—The "majority" supper of the Scottish Horticultural Association was held on the evening of the above date in the Windsor Hotel, Edinburgh. There was a large company. Mr. M. Todd, president, was chairman. After supper the toasts of "The Queen," "The Prince and Princess of Wales, and other Members of the Royal Family," were given from the chair, and the "Navy, Army, and Reserve," by Mr. R. Laird. Mr. Mac'enzie proposed the "Lord Provost and Magistrates," and said it had been the good fortune of Edinburgh for many generations to be ruled by a body of intelligent, patriotic, and far-seeing men. He could look back to 1851, and he was simply astonished at the progress that had been made in various directions. Baillie Hay in reply, said Edinburgh owed much to her sanitation and to all that went to beautify her. They had done much to cultivate a taste for flowers, and the taste was growing. They were a large educator, they were a large educational school. It was a very great pleasure to those who were in the Corporation to know that their services, their arduous duties, were appreciated. Baillie Hay, subsequently, in proposing the toast of the evening, "The Scottish Horticultural Association," said that Association twenty-one years ago began in a very small way. They had their meetings first in the Bible Society's rooms, and there they read and discussed matters bearing upon horticulture. They had been banded together for the promotion of the noble art of horticulture, and they had now reached their majority. It was all the more gratifying to know that notwithstanding those many years in the past, they had not lost their vigour, but were fresh, and strong and healthy.

The CHAIRMAN, in reply, said they had done what they could to deserve success, and the public had backed up their efforts, and ample success had followed. They had had no ebb-tide, and their success had gone on year after year. They were very grateful for the encouragement they had received from the Corporation of Edinburgh. Since the Chrysanthemum Shows were established he did not need to say that they had gone on with unvarying success. One success had led up to another. The public had come to look upon their show as one of the most attractive entertainments of the year in their city. He referred to the fact that from their abundance they had very wisely, and he hoped he might claim very generously, devoted part to works of charity. Mr. D. P. Laird proposed "Gardeners and Gardening," and Mr. Duun, in responding, suggested that for new articles of real merit produced by gardeners the Association should give Medals when a given number of Certificates had been obtained. During the evening the

Chairman, in his name and the name of the past presidents, presented the Association with an album containing a photograph of all the presidents. An enjoyable programme of songs was also rendered. "Scotsman," March 10, 1898.

EXETER AND DISTRICT GARDENERS'.

MARCH 9.—The paper read at the last meeting of this Society was one written by Mr. J. W. MOORMAN, Superintendent of Victoria Park, E., entitled, "Variety in the Flower Garden."

Mr. Moorman's experience in the management of public gardens, and his knowledge of the climate of Devonshire, gained whilst he worked at Poltimore, near Exeter, enabled him to emphasise the advice that he gave on this subject. The flower garden, said the writer, need not necessarily be but a mere flash of summer beauty, and by connecting the seasons, anticipating summer and lengthening the autumn season, it is an easy matter to confine the flowerless season to a few winter months. He then gave the names of a number of plants, which, if planted freely, would fill up the remainder of the season, commencing with Winter Aconite and Snowdrops, and concluding with Michaelmas Daisies. Many flowering plants, said Mr. Moorman, were being overlooked owing to the continued introduction of new species and varieties. Among the somewhat neglected ones was the old Monthly Rose. A long list of plants of a highly decorative nature was then given, in order to show how wide was the gardener's choice.

Mr. A. Hope (Hon. Sec.) presided, and a hearty vote of thanks was passed to Mr. Moorman for his admirable paper.

Mr. T. H. STADE, Poltimore Gardens, exhibited a number of very fine blooms of seedling *Amaryllis* of Veitch's strain of hybrids; the colours were bright and varied, the form and substance all that could be desired, and several measured 9 to 10 inches in diameter, the flowers bearing evidence of good cultivation.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

MARCH 13.—The annual general meeting of the members of this excellent institution was held on Monday evening last at the Caledonian Hotel, Adelphi, Mr. GEO. WYNNE presiding.

The annual report was read as follows:—"In presenting the annual report and balance-sheet for the year ending January 10, 1898, the committee have great pleasure in stating that the Society continues in a prosperous condition. Sixty-eight members joined during the year, twenty-one lapsed, and three died, one being a lapsed member, and the amounts standing to their credit in the ledger had been paid to their nominees. The membership is now 680. The amount of subscriptions paid by members to the Benefit Fund, including arrears for 1896, was £1,064 14s. 2d. The amount paid to sick members was £232 9s., there having been forty-six members on the Fund. The amount of subscriptions to the Benevolent Fund from honorary and benefit members was £129 1s., and £23 10s. has been granted in small amounts to four members from this fund. The Convalescent Fund is progressing favourably. It is suggested that this fund should now be incorporated in the rules. The amount received for this fund, including donations at the annual dinner, was £28 6s. 8d. Two members received £1 10s. each from this fund. The Management Fund shows a balance of £77 15s. 7d., having benefited to the extent of £10 10s. by donations at the annual dinner; also £10 6s. 6d. by advertisements in the Annual Report. The annual dinner was again held at the Holborn Restaurant. H. B. MAY, Esq., occupied the chair, and fulfilled his office in the best manner possible, and everyone present thoroughly enjoyed the evening's entertainment. The accounts were audited by Messrs. W. Gunner and Geo. Dixon, and found correct. The Committee again invite members of the craft to join this Society, and so lay by something for a rainy day, taking for their motto "Union is Strength."

A detailed account of the receipts and expenditure in connection with the various funds was next read by the Secretary, followed by a most satisfactory statement of liabilities and assets, by Mr. J. HUNSON, the hon. treasurer. We are unable to reproduce them here, but it was decided to print 2500 copies of the Society's report and balance-sheet for distribution, and one of these may be obtained on application to the Secretary, 9, Martindale Road, Balham, S.W.

The CHAIRMAN, in moving the adoption of the report, referred in appreciative terms to the efficient and economical manner in which the management of the Society had been conducted. It had an invested capital which at par value was worth £13,100, and which has recently been valued as actually worth £14,742 10s. There were now on the books of the Society 720 paying benefit members, and thus the capital would average nearly £20 10s. per member. The working expenses had been only about 6 per cent. of the income. The investments during 1897 had been £1200. In 1894 only £361 17s. 6d. was invested in the year, and since then the capital has been increased by £10,000. Members have still been allowed interest at 3 per cent upon the balances standing to their account, which in his (the Chairman's) opinion was marvellous. In conclusion, the Chairman noted with pleasure the exceeding low death-rate amongst the members.

Mr. W. MARSHALL seconded, and as one of the original members he congratulated the Society upon the prosperity it had acquired. In its first days, when he advanced £10 to the Secretary, to enable the few members to "unite," he was convinced that there was a useful future before it.

The report was passed with unanimity. Next took place the election of officers. There were four retiring members from the committee, but these and the rest of the officers were re-elected, and votes of thanks passed. On the motion of Mr. HUNSON it was decided to pay the secretary for the past year according to rule, and to present him in addition a bonus of £5.

In replying to a vote of thanks offered to the committee, Mr. COLES took occasion to say that next year he hoped to attain the age of seventy, and there would be a sum of about £50 that he would draw. The interest on his deposit fund at the present time more than paid his annual subscription.

The termination of the annual meeting was immediately followed by a special general meeting called for the revision of certain rules.

Mr. HUNSON proposed that in Rule 8 an alteration be made on p. 9, line 8 from the top, "instead of £20, read £30." This was seconded and carried unanimously. The result is that the secretary's salary will henceforth be £30 instead of £20 per year, with the usual 6d. per member on all those above 300.

Mr. BURGE proposed, and Mr. COLES seconded, an alteration in Rule 14, "that on p. 11, line 10 from the bottom, after the words 'lower scale,' be added the words 'with the privilege of increasing this to,'" carried *nem. con.*

Mr. W. R. THOMPSON proposed, and Mr. WINTER seconded, that in Rule 14, p. 12, line 14 from the top, the word "successive" after "twenty-six" be struck out. The object of this alteration was to prevent a member from obtaining more than twenty-six weeks full sick pay in twelve months, to date from the commencement of the receipt of relief. There was some opposition to this amendment, especially from Mr. TAYLOR, but in the end it was carried.

The following new rule *re* Convalescent Fund was next proposed, and adopted *nem. con.*

VOLUNTARY CONVALESCENT FUND.—"The object of this fund is to give members a change of air during convalescence. The Committee of Management to have power to relieve members of this Society from this Voluntary Fund as they may deem advisable. All cases must be recommended by a duly qualified medical practitioner."

The meeting afterwards separated.

EALING AND DISTRICT GARDENERS'.

MARCH 15.—The members of this Society have on several occasions shown their interest in the Royal Gardeners' Orphan Fund by carrying out entertainments for its benefit, and thus acquiring substantial sums. On Tuesday last the gardeners, with the consent of their employers, held a charming spring exhibition in the Victoria Hall, and helped by some of the local artists, made a display of a very attractive character, all the more gratifying because there was no prize money to be obtained. The exhibition consisted of groups of foliaged and flowering-plants, spring-blooming subjects greatly predominating, which were arranged down the centre and along the sides of the hall, and on a spacious table at one end, the platform being also charmingly decorated. There were so many contributions that it would be invidious to particularise; suffice it to say, that all who could, contributed to make one of the best displays ever seen in Ealing at this season of the year. The Exhibition was opened by Lady NELSON, supported by Mr. J. Harris, the President of the Gardeners' Society; Mr. William Marshall, the Chairman of the Committee of the Fund; Mr. A. F. Barron, the Hon. Secretary, and others. The weather was delightful, and it is hoped a goodly sum will result from the appeals on behalf of the Fund made by Lady Nelson and Mr. Marshall.

Obituary.

MR. T. KIRK.—We regret to learn from the columns of the *Times* of the death of this eminent New Zealand botanist. Mr. Kirk has been for many years a correspondent of this journal, and did much by his papers and monographs to complete the *Flora of New Zealand* commenced by Sir Joseph Hooker. The work by which he is best known is his *Forest Flora of New Zealand*, in which all the trees and shrubs of those islands are figured and described. The exploitation of the timber is also treated of, so that the work forms a complete treatise on the forestry of New Zealand. Mr. Kirk was for some years conservator of the State Forests of New Zealand.

ROYAL HORTICULTURAL AND BOTANICAL SOCIETY OF GHENT.—At the last meeting of this Society at the Casino at Ghent, M. A. MAERTENS BRACQ in the chair, the following subjects obtained recognition, viz., *Didymospermum porphyrocarpum*, *Phoenix histrix*, and *Anthurium Rothschildianum* Exelsior (unanimously), shown by M. L. de Smet, Certificates of Merit; *Azalea Madame Louise Cuvelier*, shown by MM. Haerens Frères; *Vriesea Rex*, shown by M. L. Poelman-Maenhout; *Cymbidium grandiflorum* var. *punctatum*, shown by MM. Versyp Frères et Scurs; *Aechmea pulchella*, shown by MM. Duriez Frères; and *Selaginella Emmelliana aurea*, shown by M. Szewezik, were also awarded Certificates of Merit.

ENQUIRY.

"He that questioneth much shall learn much."—BACON.

ASPARAGUS LARICINUS.—Will any of our readers kindly inform "K. W. Johu" whence he can obtain some seeds of *Asparagus laricinus*.



[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named: and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				No. of Rainy Days since January 2, 1898.	Total Fall since Jan. 2, 1898.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 2, 1898.
	Above (+) or below (−) the Mean for the week ending March 12.	Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since January 2, 1898.				
0	1 +	11	33	+ 40	110	4	6	15.1
1	1 +	15	41	+ 48	157	4	40	3.8
2	2	11	42	+ 92	153	3	52	23
3	4	3	42	+ 28	16	3	30	2.1
4	5	5	49	+ 42	167	4	19	2.1
5	3	3	30	+ 60	194	3	28	2.6
6	0 over	12	30	+ 75	143	7	47	8.8
7	3	9	38	+ 79	173	4	41	6.4
8	5	7	37	+ 68	121	2	38	5.1
9	0 over	17	30	+ 77	113	4	49	6.9
10	2	17	28	+ 88	91	5	37	6.6
11	3	10	17	+ 106	76	2	45	3.7

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; 11, Channel Islands.

THE PAST WEEK.

THE following summary record of the weather throughout the British Islands for the week ending March 12, is furnished from the Meteorological Office:—

"The weather during this period was fair as a whole, but falls of rain or sleet were experienced in the west and north at the beginning of the week, and rain had set in again in the north and north-west towards the end of the period.

"The temperature was above the mean in 'Scotland, N. and E.' and just equal to it in 'Scotland, W.' and 'Ireland, N.'; in all other districts it was below the normal, the deficit being 4° in 'England, E.' and 5° in the 'Midland Counties,' and 'England, S.W.' The highest of the maxima were recorded towards the end of the week, and ranged from 57° in 'Scotland, E.' and 56° in 'England, N.E.' to 50° in 'England, E.' and S.' The lowest of the minima were recorded during the earlier half of the week, and ranged from 9° in 'Scotland, E.' (at Braemar on the 8th), and from 16° in 'Scotland, N.' to 26° in 'England, S.' and to 32° in the 'Channel Islands.'

"The rainfall was less than the mean in all districts, and in all but the extreme northern and south-western districts the fall was very slight.

"The bright sunshine again exceeded the normal amount in most districts, but was rather deficient in 'Scotland, W.' eastern, central, and southern England, and the 'Channel Islands.' The percentage of the possible duration ranged from 43 in 'England, S.W.' 41 in 'Scotland, E.' and 40 in 'England, N.E.' and N.W.' to 22 in 'England, S.' and 20 in the 'Midland Counties.'"

THE FLORA OF ARID REGIONS.—M. L. G. SEURAT has published, in the February issue of the *Revue Générale de Botanique*, some interesting facts relating to the plants of the arid districts of Mexico, and the manner in which these are peculiarly adapted to enable them to withstand the adverse influence of the dryness of the soil. These adaptations are especially pronounced in species which prove themselves capable of living on the ancient slopes of basaltic lava, of which many are found in the neighbourhood of Mexico, in localities where, during seven months, not a millimetre of rain falls. Cacti (two *Opuntia* one *Mammillaria*, one *Cereus*) support life by economising the water which falls during the season of rain: the cuticle and the spines retain the precious moisture stored in the fleshy stems well known to all—these are, moreover, almost entirely concealed with the *Mammillaria* in the soil. All these Cacti have very long roots, which creep and extend below the surface of the soil into interstices, where they send out threads which burrow and seek in the depth of the ground for water which may have filtered thus far through. *Agave americana* (or *Magney*) is also protected by a thick cuticle, which the natives use as parchment, to be written or painted upon. *Schinus molle* (or *Tree of Peru*) has its leaves covered with a glossy cuticle; the roots also are very long, running over the surface of the soil, and sending down ramifications. This root is so errant, that *Schinus* is not much cultivated in gardens; it spreads over all the ground, and denudes it to the detriment of neighbouring plants. *Senecio præcox*, which is a Composite, has a straight stem nearly 5 feet high; it branches several times, and each branch is terminated by a group of flowers. These open, and the plant blooms before possessing a single leaf, whence the name of *præcox*. This is a wise economy; the plant is not obliged to furnish the very considerable amount of water required for forming flowers and leaves at the same time. The leaves are covered with a thick glazed cuticle. The soft interior, protected with a thick skin, encloses a considerable provision of water. The root is long, and scarcely goes over the ground, but forces itself as deeply as it can into the interstices of the larva where a little vegetable earth is accumulated. Compared with *S. vernus*, which grows in less dry regions, *S. præcox* is manifestly constructed to undergo privations, hence its miserable appearance. Then the *Tigapan Nettles* have leaves protected by numerous hairs, and these shield them from the sun when nestled into the fissures of the rocks. This flora is only to be noticed during the seven months of the dry season; when once the time of rain has come, an entirely new flora arises and develops, which in five months has completed its development and produced its seed; it then dies and disappears, leaving the ground to the only adaptable species capable of withstanding the ensuing drought. *Revue Scientifique*.

MARKETS.

COVENT GARDEN, MARCH 17.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who review the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
<i>Adiantums</i> , p. doz.	4 0-12 0	<i>Ferns</i> , various, doz.	5 0-12 0
<i>Aspidistras</i> , per doz.	12 0-30 0	<i>Ficus elastica</i> , each	1 0-7 6
— specimen, each	5 0-15 0	<i>Foliage plants</i> , doz.	12 0-30 0
<i>Azalea</i> , per dozen	30 0-42 0	<i>Gonistis</i> , per doz.	8 0-12 0
<i>Cineraria</i> , per doz.	6 0-9 0	<i>Hyacinths</i> , per doz.	6 0-12 0
<i>Cyclamen</i> , per doz.	12 0-18 0	<i>Liliums</i> , various,	
<i>Dracænas</i> , each	1 0-7 6	per dozen	18 0-30 0
— various, per		<i>Marguerites</i> , p. doz.	6 0-10 0
dozen	12 0-24 0	<i>Palms</i> , various, ea.	2 0-10 0
<i>Ericas</i> , various, per		— specimen, ea.	10 6-84 0
dozen	9 0-18 0	<i>Primula</i> , single, per	
<i>Evergreen shrubs</i> ,		dozen	4 0-6 0
in variety, doz.	6 0-24 0	<i>Tulips</i> , dozen bulbs	1 0-1 6
<i>Ferns</i> , small, doz.	1 0-2 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arums, 12 blooms...	3 0-4 0	Orehide;—	
Azalea, doz. sprays	0 6-0 9	Cattleya, 12 bms.	6 0-9 0
Bouvardia, pr. doz.	0 6-0 8	Odontoglossum	
Carnations, pr. doz.		crispum, 12 bms.	2 0-4 0
blooms	1 0-3 0	Pelargoniums, scar-	
Daffodils, doz. bun.	2 6-6 0	let, per 12 bun.	4 0-6 0
Eucharis, per dozen	3 0-4 0	per 12 sprays...	0 6-0 9
Gardenias, 12 blooms	2 0-3 0	Primroses, 12 bun.	0 9-1 0
Hyacinth, Roman,		Roses, Tea, per doz.	0 6-1 0
doz. bunches...	4 0-6 0	— yellow (Pearls),	
Lilac, Fr., p. bunch	3 0-4 0	per dozen	2 0-4 0
Lilium Harris, per		— pink, per doz.	4 0-8 0
doz. bunches...	2 0-4 0	— Safrano, p. doz.	1 0-2 0
Lily of the Valley,		— red, per dozen	3 0-6 0
dozen sprays	0 6-1 6	Snowdrops, 12 bun.	1 0-1 6
Maidenhair Fern,		Tuberose, 12 bms.	1 0-1 6
per 12 bunches...	4 0-8 0	Tulips, 12 blooms...	0 4-0 9
Mignonette, dozen		Violets, 12 bunches	0 9-1 0
bunches	2 0-4 0	— Parne, French	2 0-3 6
Narciss, various, per		Wallflowers, 12 bun.	4 0-6 0
dozen bunches...	1 6-3 0		

ORCHID-BLOOM in variety.

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, Californian,		Grapes, Gros Col-	
cases	10 10-14 0	mar, per lb...	3 6-4 0
— Canadian, barrels,		— 2nd quality	2 6-3 0
— Nova Scotia,		— Almeria, per	
barrels	15 0-24 0	dozen lb.	10 10-12 0
— English, 100 cwt.		— Cape, white, p.	
bushels	8 0 —	20 lb	12 0-18 0
— Golden		Pears, Californian,	
Knobs	8 0 —	cases	10 10-15 0
— Cackle		Pine-apples, each...	1 6-4 0
Pippins	7 0 —	Strawberries, best,	
Bananas, bunch	8 0-12 0	per lb.	10 0-13 0
Cob-nuts, p. 100 lb.	16 0-18 0	— 2nd quality	5 0-7 0

The Cape Grapes are not of fine quality. An improvement appears to be necessary in the method of picking them.

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Asparagus, English,		Mint, per dozen	
p. bundle, 100		bunches	6 0-8 0
heads	6 6-7 6	Mushrooms, per lb.	1 0 —
— (Paris), Green,		Onions, English,	
per bundle	4 6-5 0	per cwt., best	10 0 —
— Giant	20 0 —	— Dutch, per bag	7 0 8 0
— Spanish	2 10-3 1	— French, bags...	8 0 —
— Perpignon	2 10 —	— picklers, per	
— Cabots	1 2 —	sieve	3 0 —
— Spruce	0 9-1 0	— Valencia, cases	12 0-13 0
Artichokes, Globe,		Parsnips, per bag	2 0-2 6
per doz.	1 6 —	Parsley, per sieve	0 9-1 0
— new, do.	3 0 —	Pears, French, p. lb.	0 4-0 5
— Jerusalem, sieve	1 0 —	— Marrow, from	
Beans, English, lb.	1 0-1 2	Channel Isles	1 6 —
— Channel Islands,		Potatoes, Channel	
per lb.	1 0-1 2	Islands, framed	
— (Madeira), per		kids, p. lb.	0 5-0 7
package	3 0-3 6	— Canary, cases,	
— Longpods, in		per cwt.	14 0-16 0
flat	5 0 —	— French, boxes,	
Beetroots, p. bush.	1 6 —	per lb.	0 3 —
Broccoli, Italian,		— Algerian, cases,	
package of 18	3 6-4 0	cwt.	14 0-16 0
— Cherbourg, per		Radishes, Long, per	
doz.	1 6-2 0	doz. bundles	0 8-1 0
— Kent, per crate	10 0 —	— Round, p. doz.	
— sprouts, bush.	0 9 —	bundles	0 9-0 10
— per bag	1 6 —	Rhubarb, York,	
Brussels Sprouts,		per doz.	
bush...	3 6 —	bundles	1 6-1 9
Cabbage, Cherbourg,		— outdoor, p. doz.	
per doz.	0 6-0 9	bundles	3 0-3 6
Coleworts, in bags	1 0-1 6	Salad, small, per	
Carrots, French, flat	1 9 —	doz. punnets	1 3 —
— English, washed		Seakale, per dozen	
in cwt. bags	2 6 —	punnets	15 0 16 0
Celery, per doz.	2 6 —	— Curled Kale, p.	
Celery, doz. bunches	12 0-18 0	bush	1 0 —
Chicory, per lb.	0 2-0 3	— per bag	1 6 —
Cucumbers, p. doz.	2 6-4 0	Shallots, per lb.	0 2 —
Endive, per doz.	1 6-1 0	Spinach, p. bush.	1 6-2 0
— Batavian, p. dz.	1 0 1 6	Tomatoes, English,	
Garlic, per lb.	0 4 —	per lb.	1 0-1 6
Horseradish, per		— Canary, p. box,	
bundle	0 9-1 0	15 lb.	2 6-3 6
Leeks, per dozen		Turnips, per bag	2 0 —
bunches	1 3-1 6	Turnip-tops, per bag	1 6 —
Lettuce, Cabbage,		— per bush.	0 9 —
per doz.	0 10 1 3	Watercress, p. doz.	
— Cos, per doz.	3 6-4 6	bunches	0 6-0 8

POTATOES.

Market firm, with a further upward tendency for best samples. Present prices:—Maincrops and Saxons, 105s. to 120s.; Magnums and Bruce, 105s. to 120s.; Dunbar Maincrops, 120s. to 130s.; Blacklands, 100s. to 110s. per ton. Foreign Ware, 4s. to 5s. per bag. New Potatoes, 11s. to 20s. per cwt. John Bath, 32 and 34, Wellington Street, Covent Garden, W.C.

SEEDS.

LONDON: March 16. — Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., report a thin attendance on to-day's market, with a quiet

steady business doing. Grass and Clover-seeds show this week no important change in value. There is an abundant supply of English Red, obtainable on somewhat easier terms. Alsike, Trefoil, and Timothy keep firm. White Clover-seed is rather cheaper. For Tares and Rye there is a good inquiry. Canary-seed is unaltered, whilst in Hemp seed the tendency continues upwards. Mustard and Rape-seed are strong; but Linseed is dull. A few new Scarlet Runner Beans have just arrived. Peas, Haricots, and Lentils keep steady. The Board of Trade Returns give the imports of Clover and Grass seeds into the United Kingdom for the first two months of this year as 105,198 cwt., value £209,842, as against 86,134 cwt., value £172,438, for the corresponding period of 1897.

FRUIT AND VEGETABLES.

GLASGOW: March 13.—The following are the averages of the prices at this market during the past week:—Apples, 4d. to 8d. per lb.; Grapes, home, 2s. to 3s. do.; da., foreign, 4d. to 6d. do.; Cabbages, Spring, 6d. to 8d. per doz.; Parsnips, 4s. to 4s. 6d. per cwt.; Herbs, 1d. to 2d. per bunch; Leeks, 1s. 6d. to 3s. per dozen bunches; Mint, 9d. to 10d. per bunch; Onions, Dutch, 5s. per bag; do., Portugal, 9s. per case; Parsley, 1s. per stone; Potatoes, best, 10d. per peck; Carrots, 2s. to 3s. per bag; Artichokes, 3s. to 3s. 6d. per sieve; Cucumbers, 1s. to 1s. 2d. each; Lettuce, round, 1s. 3d. per doz.; Radishes, 1s. do.; Horseradish, 1s. 6d. to 2s. per bunch; Mushrooms, 1s. to 1s. 2d. per lb.; Beetroot, 6d. to 7d. per doz.; Brussels Sprouts, 1s. to 1s. 3d. per stone; Spinach, 3s. to 3s. 6d. do.; Rhubarb, 10s. to 12s. per cwt.; Turnips, Swedes, 1s. to 1s. 3d. per bag; do., white, 1s. per large bunch; Celery, Scotch, 9d. to 1s. 6d. per bunch; do., English, 1s. to 2s. do.; Cabbages, Red, 1s. 6d. to 2s. 6d. per dozen; Savoy, 1s. to 1s. 6d. do.; Broccoli, 2s. 6d. to 3s. do.; Greens, 5s. to 6s. per 10 dozen.

LIVERPOOL: March 16.—Average of the prices at underquoted markets:—St. John's: Potatoes, 1s. 2d. to 1s. 4d. per peck; Cucumbers, 1s. each; Grapes, English, 3s. to 4s. per lb.; do., foreign, 8d. to 1s. do.; Pine-apples, English, 4s. to 6s. each; Mushrooms, 1s. 3d. per lb. Birkenhead: Potatoes, 1s. 4d. per peck; Cucumbers, 6d. to 8d. each; Grapes, English, 2s. to 4s. per lb.; do., foreign, 8d. do.; Pine-apples, English, 5s. to 10s. each; do., foreign, 3s. to 5s. do.; Mushrooms, 1s. to 1s. 6d. per lb. North Hay: Potatoes, per cwt.: Giants, 4s. to 4s. 4d.; Main Crop, 4s. 10d. to 5s. 6d.; Bruce, 4s. 4d. to 5s.; Turnips, 6d. to 8d. per doz. bunches; Swedes, 1s. to 1s. 4d. per cwt.; Carrots, 2s. 3d. to 3s. 6d. do.; Onions, foreign, 9s. 6d. to 12s. do.; Parsley, 4d. to 6d. per dozen bunches; Cucumbers, 8s. to 5s. per dozen; Cauliflowers, 1s. 6d. to 3s. do.; Cabbages, 6d. to 10d. do.; Celery, 6d. to 10d. do.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending March 12, and for the corresponding period of 1897, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

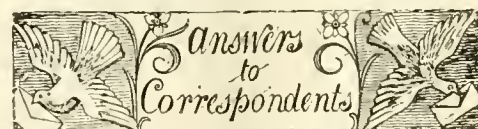
Description.	1897.	1898.	Difference.
	s. d.	s. d.	s. d.
Wheat	27 11	35 8	+ 7 9
Barley	22 11	27 10	+ 4 11
Oats	16 2	17 9	+ 1 7

GARDENING APPOINTMENTS.

MR. W. STUTON, for the past five years Gardener at Hawkstone, Shropshire, as Gardener to H. J. BECKWITH, Esq., Milbroke Park, Craven Arms, Salop.

MR. ROBERT BROWN, Senior, Foreman in the Gardens, Terregles, Dumfries, N.B., as Gardener to Sir EMILIUS LAURIE, Bart., of Maxwelltown House, Dumfriesshire. Mr. Brown takes up his new duties early in April.

MR. ERNEST A. HELPE, more than four years General Foreman in Latham Park Gardens, Ormskirk, as Head Gardener to J. H. PARKIN, Esq., Sharrow Bay, Peurith, and enters on his duties April 1.



BOOKS: P. F. L. We are not acquainted with either, and cannot advise you. The prices seem high for such works.—*Perfumes and Seeds*. We do not know any books on the subject you mention. Piesse's *Book on Perfumes* does not enter into detail regarding their cultivation.

CUCUMBERS, TOMATOES, GRAPES, &c.: W. C. We should suppose that the south and the west would serve your purpose best, but clever cultivators manage to obtain good crops in very unpromising localities, if the air be pure, and the water supply wholesome. We are unable to advise you further.

CUCUMBER: J. W. Leaves thin from lack of air and light, and probably extreme humidity, and just, therefore, in a condition for becoming a suitable

host for minute fungi. Syringe the plants with sulphide of potassium, at the rate of ½-oz. to the gallon.

HYDRANGEAS: H. H. If the plants are expected to blossom early, do not shift them till they have done so, or you would thereby encourage the growth of shoots at the expense of the flower heads. Apply liquid-manure occasionally. You may repot after blooming and pruning, and endeavour to obtain early growth, and by keeping the plants in a sunny place out-of-doors or in a cold pit, ripen the same thoroughly. It is upon the perfect ripening of the new growth that flowering chiefly depends.

LAND UNDER SHADY BEECHES: A. B. It is almost waste of time and money to sow grasses in such positions unless the land be seeded annually with Italian Rye-grass. Better plants would be Periwinkle (*Viola*), strong-growing Ivies, hardy Ferns, such as *Scelopendrium*; and in the less densely shaded parts, Snowdrops, Scillas, Crocus, and Solomon's Seal, and *Saxifraga umbrosa* London Pride, would succeed, mown over once or twice in the summer.

LOS ANGELES: E. Green. Advertise in *American Gardening*, or other United States of America gardening journal. It is a fine district for the Grape, Orange, and other fruits, perfume plants, &c. The climate is like that of the south of France, and would doubtless be beneficial to your health, relieving the rheumatic affection that you suffer from.

NAMES OF FRUITS: Mr. Rooper. Pear not recognised. Fairly palatable for so late a variety.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—E. B. *Streptosolen Jamesoni*.—S. L. *Pittosporum undulatum*.—H. P. *Odontoglossum luteo-purpureum* of the best type.—T. F. The *Cypripedium* is *C. x Murillo* (Boxall x Argus). The imported *Dendrobium* noble flowers are very fine indeed.—J. L., Belfast. A very good variety of *Cypripedium hirsutissimum*.—*Tempus fugit*. *Orobancha coerules*, introduced with peat—parasitic on roots.—J. R. M. *Jasminum Sambac*.—R. S. *Saxifraga aretioides*.—J. P. T. *Dendrobium crystallinum*.—J. Mc. 1, a very fine *Cypripedium villosum*; 2, *Coleogyne flaccida*.—F. B. 1, *Asclepias curassavica*; 2, probably a seedling *Cypripis*, but it cannot be named from the specimen sent; 3, *Anthericum linari variegatum*.—G. B. 1, *Erica carnea*; 2, *Erica mediterranea*; 3, *Pulmonaria officinalis*; 4, *Anemone coronaria*, one of the double forms.—Anstie, Ghent *Azalea carnea elegans*.

PANCRATIUM: Contich. *Hymenocallis ovata*.

SLUGS AND WOODLICE IN A FERNERY: A. J. N. Boiling water is the best remedy for woodlice, dashing it under stones, into crevices, &c. The insects propagate rapidly, and at first are very minute, but boiling water ends them by the thousand, but it must be frequently employed till it is seen that their numbers have greatly lessened. Try quick-lime or culinary salt for the slugs, applying a sprinkle at their feeding time. Many may be caught under slates raised ½ inch from the floor.

COMMUNICATIONS RECEIVED.—T. H., the answer to your questions would take up more time and space than we can afford. We will endeavour to give you some hints next week.—W. R.—Carter & Co.—H. R., Singapore.—C. A. H., next week.—H. Corvevo, Geneva.—G. C. D.—Sander & Co.—C. W. H.—J. F. H.—J. H. S.—A. R.—Dr. Christ. Basle.—F. W. B.—V. Dallimore and G. B. (next week).—R. A. R.—J. A.—F. C. D., Woodville, N.S.—A. W., Ware.—S. A.—J. F. McL.—W. R.—J. Dickson & Sons.—W. R.—J. A.—H. M.—R. D.—G. G.—Expert.—W. A. S.—D. T. F.—W. B. H.—J. O'B.—G. H.—H. W. W.—E. F. H.—Goodlife.—G. B.—Constant Reader.

DIED.—On the 11th inst., at 303, Clapham Road, CHARLOTTE ELIZABETH, wife of ROBERT BRAITHWAITE, M.D., F.R.S., and second daughter of the late N. B. Ward, F.R.S.

CONTINUED LARGE INCREASE in the CIRCULATION of the "GARDENERS' CHRONICLE."

Important to Advertisers.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED,

and that it continues to increase weekly.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES of GARDENERS and GARDEN-LOVERS at home, that it has a specially large FOREIGN and COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE

Gardeners' Chronicle.

SATURDAY, MARCH 26, 1898.

SEEDS.

THE vitality of seeds has lately engaged the attention of botanical physiologists. Experiments have been made at Kew and elsewhere for the purpose of determining what changes, if any, take place in seeds when placed under conditions of exceptionally low or high temperatures, and the results have been surprising. Seeds which had been subjected to a temperature of -190° C. (340° F. of frost) for nearly five days were uninjured, and germinated freely when sown. Similar results followed the boiling and roasting of certain seeds for half an hour or more. It has been recorded that seeds of Poppy, Sunflower, and Parsley, when made perfectly dry, did not lose their vitality when placed in a temperature of 212° F. for forty-eight hours.

These experiments may lead to results of the greatest practical importance. They show that seeds are capable of supporting, without any loss of vitality, conditions which would be fatal not only to the plants which bore them, but to life in any form. Their condition under these extremes must be one of what is termed suspended animation; and if once this fact can be established, we may expect to find conditions in which seeds might retain their germinative power for any length of time. The germination of "Mummy-wheat" and of the Grecian refuse-seeds, which had lain dormant two or three thousand years, would then seem no longer impossibilities.

Seeds vary enormously in their provisions for retaining vitality, some perishing in a few weeks if kept at rest, whilst others have been known to grow after being kept for a century or more. What the change really is that takes place in a seed, and destroys its vegetative power, does not appear to be known. It is therefore to be hoped that the present enquiry will lead to the discovery of some means by which we can keep seeds of all kinds healthy for much longer periods than has hitherto been possible. With our present methods for the treatment and transport of seeds, failure is often experienced. Experiments might be made on such seeds as soon perish under ordinary conditions, by keeping them in a frozen condition for a lengthened period, and then sowing them. The experiments already made prove that some seeds, at any rate, were uninjured by extremes of temperature such as they never experience in a state of Nature. As an example of how useful such a discovery would be, we may cite the recent failure of a large importation of seeds of a rubber-tree intended for distribution. It is possible that the refrigerator may be turned to account by the seed-merchant with results as satisfactory as in the case of the meat and fruit merchants.

Much may, however, be done even under present methods by the grower, the harvester or collector, and packer to ensure a longer duration of seed vitality. When seeds are intended to remain dormant for a time, they should be collected only when thoroughly ripe. If known to perish soon, they should be kept in soil or some similar medium. Most kinds of seeds, however, are safest when stored in canvas-bags or paper packets, and kept in a dry place of uniform medium temperature. The hermetically-sealed method often proves disastrous.

The longevity of seeds cannot be ascertained by an examination of their shells or structure generally. Seeds may look good, and when sown fail to germinate; whilst on the other hand, seeds which are shrivelled and apparently incapable of germinating, sometimes germinate readily.

The treatment of old seeds whose germinative powers have been weakened from some cause, requires careful consideration. As a rule, seeds with hard or tough leathery shells are less liable to perish easily than those with soft or thin papery shells. Every seed has stored up within itself all the materials necessary for the development of the embryo when placed under suitable conditions, but sometimes it is enclosed in a shell so impervious to heat and moisture that it remains unquickened for a long time, and, in some cases, it is unable to germinate. The seeds of *Nelumbium* when once dry will lie dormant for several months, even when placed in warm water, but if the shell be cracked, or filed through, germination begins at once. Other hard-shelled seeds behave in the same way, and they have been known to lie unaffected by either heat or moisture for several years until released, as it were, by filing or cracking their shells. Immersion in boiling water for a few minutes by holding the pot and soil containing the seeds in a bucket, or, if large, removing them from the soil and after soaking in hot water resowing in fresh soil, will often hasten germination.

As a general rule, a higher temperature than that under which the parent plant thrives is preferable for all seeds, and the older they are the higher, in reason, should be the temperature. Heat quickens the embryo into activity and softens the wrappers of the seed. Some cultivators are of opinion that the seeds of alpine plants and indeed of all plants give better results when treated after Nature's plan in regard to heat and moisture. This would hold good were it not that the seed is often made dry, hard, or tough by the treatment it necessarily undergoes before it can be sown, and to remedy this an excess of heat above the normal is necessary. Frost is said to have the same effect on the seed-wrapper as has heat, but speaking from experience with many kinds of seeds of varying ages, I should say that old, weak seeds of doubtful vitality are much more likely to germinate under the stimulating influence of a high temperature than otherwise. Seeds of *Primula imperialis* from a very great elevation in Java germinated at Kew only when sown in a tropical temperature; and the same is true of *Ranunculus Lyalli* from the snow-clad mountains of New Zealand. The seeds of the hybrid *Disas*, raised at Kew, were sown in a temperature which would soon kill the full-grown plants. Expert growers of Persian *Cyclamen*, Chinese *Primrose*, tuberous *Begonia*, and many other cool-house plants, sow the seeds in a tropical temperature. Numerous instances of this character might be given. Should any fungoid mould develop about old

seeds after sowing, the soil should be saturated with a weak solution of permanganate of potash; or, if the seeds are large enough to handle, separate the bad from the good, bathe the latter in the permanganate of potash, and resow in fresh soil.

It is well to err on the side of waiting when dealing with old seeds, as I have known such to remain dormant for two years from no apparent cause, and then to germinate. W. W.

NEW OR NOTEWORTHY PLANTS.

LIVISTONA WOODFORDI, n. sp.*

THE genus *Livistona*, though by no means a large one, contains several of the best and most useful cultural Palms we have, and any addition to it must be very acceptable to those who are admirers of Fan-Palms, nor is the present new species inferior to any yet known. Its discoverer, Mr. Micholiz, describes it as being, especially a young plant, really grand. *Livistona Woodfordi*, like most species of the genus, attains to a considerable height—from 30 to 40 feet—the diameter of the stem being from 4 to 5 inches. The leaves have rather slender petioles, on which I see no thorus, but the bases are wanting in the specimens. The petioles are but a quarter of an inch through. The blade of the leaf is orbicular, 2 feet long, and about 18 inches across, split into very narrow acuminate lobes, the lower ones of which are free almost to the base; those on the apex of the leaf are split only one-fourth of the way down. The leaves sent are rather thinner than those of most *Livistonas*, but may have been taken from young plants. The spadices attain a length of 4 feet, and are unusually slender. They bear numerous panicles, with short, slender branches protruding from the mouths of the tubular brown sheaths. The flowers are unusually small, almost minute, and are sessile in small clusters of two or three on the branches of the panicles. The drupes are globose, three-eighths of an inch long, and apparently (judging from spirit specimens) bright red. They have a fleshy, fibrous pericarp, and a globose seed.

This Palm appears to be very local; only found in one island, so far as its collector has seen. Its affinity is with *L. australis*, the *Corypha australis* of many gardens; but it is even more elegant, and possesses much smaller flowers, and smaller globose fruit.

The *Livistonas* occur from India through the Malay Peninsula and Archipelago, to China and Australia, and this species extends the range into the Polynesian Islands. H. N. Ridley, *Singapur*.

KEW NOTES.

PHYTELEPHAS MACROCARPA.—A male plant of this the Ivory Nut Palm, is now in flower in the Palm-house at Kew. The female plant flowered for the first time in the same house forty years ago, and it has flowered frequently since. What little trunk it has is below ground, the elegant pinnate leaves, 20 feet long, appearing to spring from the soil. The male flower-spike is axillary, at first erect, then curving over and growing along the ground. It grew about 6 inches in length in twenty-four hours, its ultimate size being nearly 2 feet in length and 2½ inches in diameter, somewhat flattened, and covered from base to apex with a bottle-brush-like

* *Livistona Woodfordi*, n. sp.—Palma clata ad 40 pedes alta; caulis diametro 4—5 pollicari. Folia petioliis gracilibus, ½ pollicis crassis nec armatis (an semper?), laminis orbicularibus fissis 2 pedes longis, 1½ pedis latis, lacinis angustis acuminatis inferne ad basin fissis, superne ad ¼ longitudinis laminæ. Spadices 4 pedales elegantes, pedunculis gracilibus. Spathæ tubulosæ. Panicule spadices breves, ramis minuto pubescentibus brevibus ad 1½ pollicis longes. Flores minuti sessilibus. Sepala ovata obtusa imbricata. Petala minora orbicularia. Stamina 6 brevissima filamentis basibus dilatatis, antheris globosis cordatis. Carpella minutissima, stylis coherentibus. Drupa globosa rubra ¾ pollicis longa, pericarpio tenui fibroso-carnoso. Semen globosum albumine corneo, teste lamina in cavitatis intrusa. In insula Polynesie, detexit cl. Micheliz. H. N. Ridley, *Singapur*.

arrangement of soft cream-yellow stamens, which emitted a powerful fragrance for the first two or three days, and, when shaken, a cloud of pollen was given off. Purdie, who first sent home seeds of this Palm, states that he was attracted to it by clouds of insects hovering near where it grew. It is a native of Central America and Colombia, where it grows near streams. The fruits are borne in large globular heads, and the hard seeds are largely used for making buttons, &c. As a garden Palm this is one of the handsomest, but it requires a large house for its proper display.

BAUHINIA VARIEGATA.

A large plant of this, one of the most beautiful small trees of India, is now in flower in the Palm-house at Kew. It is treated as a climber, and covers an area of about 100 square feet in the west transept. It has a thick woody stem, numerous branches and branchlets clothed with pale green leaves which vary in size, but average 6 inches in length and width, the petioles an inch long, the blades cordate at the base, the apex bilobed. The flowers are borne in short terminal or axillary racemes, and they resemble as to size, form, and colour, the flowers of a large Pelargonium, the five sub-regular obovate-oblong petals, each $1\frac{1}{2}$ inch long, being coloured bright rose, the lowest one streaked with crimson. According to Sir Joseph Hooker, this is an exceedingly common plant throughout India, forming a tree 20 feet high, and when covered with blossoms, which appear in March, it is, he says, a glorious object. Unfortunately it does not flower in our plant stoves, no doubt through lack of intense sunshine and a dry season to ripen the wood. A variety with pure white flowers, named *candida*, is also grown at Kew, where it flowered beautifully five years ago, when it was figured in the *Botanical Magazine*, t. 7312.

STERCULIA NEO-CALEDONICA.

The Kew example of this handsome species is again in flower in the Palm-house, where it is likely to be an attraction for several weeks, the stem showing a large number of buds. It first flowered in 1894. It is an erect, unbranched tree 10 feet high, with a stout, woody, naked stem, bearing a crown of large, palmately-lobed, dark green leaves, some 4 feet in diameter. The flowers are borne in racemes, which spring from the greater portion of the naked stem, and they are numerous, star-shaped, half an inch in diameter, their colour being brilliant orange-red. So far as I know, this is the only example of this *Sterculia* in cultivation. It is figured in the *Botanical Magazine*, t. 7382.

PLANTS OF ST. HELENA.

An interesting collection of some of the rarer plants of this island has lately been added to the Kew collection. Among them are *Commidendron robustum*, a true Composite, though known in the island as the Cabbage-tree; *Hedyotis arborea*, a near ally of *Cinchona*, and peculiar to St. Helena; *Acrostichum bifurcatum*, a pretty little fern, with finely-divided leaves, suggestive of *Davallia parvula*; *A. subdiaphanum*, with dark green hart's-tongue-like fronds, markedly corrugated; *Dicksonia arborescens*, some fine stems, now growing freely. This Tree Fern is found only in St. Helena, where it forms a stem 10 feet high. The finest example of it I know in cultivation is in the Liverpool Botanic Garden. The "moss" used as packing for the stems received at Kew proved to be *Hymenophyllum capillaceum*, also endemic in St. Helena; and, so far as I know, not before introduced into English collections.

MASDEVALLIA POURBAIXII.

A healthy plant of this hybrid is now bearing half a dozen fine flowers in the Orchid-house at Kew. It was raised by a Belgian amateur, M. Eugène Pourtaix, of Mons, from M. Veitchiana and M. Shuttleworthii, the cross being effected in 1888, the first flower opening in 1893. There is an excellent coloured-plate of it in *Lindena*, t. 387. In leaf characters it resembles M. Shuttleworthii, and in floral characters it is intermediate both as to form and colour. It may be described as one of the

handsomest of hybrid *Masdevallias*, and, judging by its behaviour at Kew, it is one of the happiest under cultivation.

DIACRIUM BICORNUTUM.

This is one of the most beautiful of all white-flowered Orchids, but it is one of the most refractory

EULOPHIELLA ELISABETHÆ.

This is also well represented at Kew, the two plants of it which flowered so well last year being even better this. It is a strikingly handsome Orchid, its long plicate dark green arching leaves and horizontal rigid flower-spikes springing from the surface of the soil, the scapes and bracts coloured varnished crimson-brown, whilst the flowers, when open, are white. This also requires hot moist treatment, and at Kew it is grown under precisely the same conditions as the *Diacrium*.

Phaius Cooksoni, *Caladenia alba*, *Pleurothallis scapha*, *Bartholina pectinata*, and other interesting Orchids are also in flower. The last-named has a fleshy kidney-shaped leaf 1 inch in diameter, and an erect scape 5 inches high, bearing a flower 3 inches across, which is remarkable in having its purplish lower segments divided into narrow strips, and spreading horizontally, suggesting a comb. W. W.

THE CULTIVATED SPECIES OF ASPARAGUS.

(Concluded from p. 148.)

A. sarmentosus (fig. 71, p. 179).—An elegant evergreen species, which has been in cultivation on and off since Miller's time. It was re-introduced to Kew in 1887 from Grahamstown, where it grew freely in a moist situation, forming dense fox-brush-like stems with short prickles, and studded with white starry fragrant flowers, which are followed with bright scarlet pea-like berries. It grows somewhat loosely at Kew where, planted out in the Temperate-house, it has stems 4 feet high, freely branched and clothed with dark green flat leaves, $\frac{3}{4}$ inch long. It is also grown in pots and baskets for the Cape-house, and when in flower it is greatly admired. A figure of it was published in the *Gardeners' Chronicle* in 1894, which is the one here reproduced. Mr. Baker describes three varieties of it, and states that it is widely distributed in South Africa.

A. scandens.—A slender scandent species, with thin spineless stems 8 feet long, branching freely above, the branches angular, short, hair-like, not zig-zag, and bearing ternate flattened, curved dark green leaves $\frac{1}{2}$ inch long. Flowers axillary, solitary, small, white, succeeded by bright scarlet pea-like berries, containing only one seed. This plant was cultivated at Kew twenty-five years ago, and is still grown there in the conservatory, where it is an effective pillar-plant, especially when in fruit in the autumn. There is also a variety of it called *deflexus*, which is so similar to *A. crispus* (*decumbens*) as to be often taken for it. The leaves of the latter are, however, narrower, and there is also the difference in the fruit, *crispus* having an oblong six-seeded berry, whilst in *scandens* and its variety the berry is scarlet and one-seeded. The branches of the variety *deflexus* are very zig-zag. I have seen plants of it named *A. albus* and *reflexus*. A native of South Africa.

A. schoberioides.—A dwarf deciduous species, which is hardy on the rockery at Kew. It has no particular attraction, the stems being about a foot high, thin, wiry, branched above, the leaves in clusters of three or four, $\frac{1}{2}$ inch long, linear, falcate, deciduous. Flowers small, sessile on lower half of branches, succeeded by numerous small red berries. Two forms of it were introduced from Japan in 1880 by Messrs. Veitch & Sons. A longer-stemmed form of it was also introduced into the St. Petersburg Botanic Garden about the same time. There is an example of it growing in a pot in the Temperate-house at Kew.

A. Sprengeri.—As a garden plant this ranks next in value to *A. plumosus*. The Continental nurserymen grow large quantities of it for the decoration of rooms, &c. It is also becoming popular for the same purposes in this country, several market-growers now having large stocks of it. It has fleshy white tubers, from which spring numerous slender woody stems, from 2 to 6 feet long, freely branched, the branchlets forming with the flattened glossy, green, inch-long leaves, an elegant ostrich-feather-like arrangement. Flowers in racemes an inch long, small, whitish. Berry, $\frac{1}{8}$ inch in diameter. Introduced from Nat.



FIG. 70.—SHOWING PORTION OF STEM OF ASPARAGUS FALCATUS (Nat. size).

A flowering-shoot of this species was figured in the issue for February 26 last, p. 123.

under cultivation. At Kew, however, it has always grown and flowered exceptionally well, and there is a plant of it in flower in the Orchid-house now bearing ten spikes from a foot to 18 inches long, the average number of flowers on each being ten. It has been grown in a hot steamy house along with *Nepenthes*. Several smaller specimens are also showing flower.



FIG. 71.—ASPARAGUS SARMENTOSUS. (SEE P. 178.)

A. tenuifolius.—A shrubby species, in the way of *A. acutifolius*, but with longer leaves and larger berries. It is hardy in this country, the rootstock being woody and perennial, the stems annual, wiry, smooth, 3 feet high, the branches with an upward curve, the grey-green leaves linear, curved, half to 1 inch long, arranged in whorls of about twenty at close intervals along the branches. Flowers axillary, $\frac{1}{4}$ inch in diameter, white, succeeded by bright red berries as large as Cherries. A good specimen of this, when in fruit, is highly ornamental. It used to be, and may be yet, exceptionally happy in Canon Ellacombe's garden, it flowering in May, and fruiting freely. It is a native of Central France, Italy, &c.

A. trichophyllus.—A hardy species, allied to *A. verticillatus*, but with shorter thinner stems, and more rigid leaves. The stems are annual, flexuose, 3 to 6 feet long, freely branched above, with spines at the base of the branches, which are curved upwards. Leaves from $\frac{1}{2}$ to 1 inch long, stiff and subulate, arranged in clusters of from twenty to thirty. Flowers axillary, usually singly, on long pedicels, succeeded by pea-like berries. A native of Siberia and Northern China. In sheltered positions, or in a greenhouse it grows into a dense bush-like specimen. I have seen a fine example of it in the open air in the Jardin des Plantes, Paris.

A. umbellatus.—A sub-shrubby plant, which is now and then seen in cultivation, having been introduced from the Canary Islands, where it is a native, in 1828. It has slender, striated, wiry stems, copiously branched above, the branches drooping, and thickly clothed with stiff, almost spinous triquetrous leaves, $\frac{1}{2}$ inch long, and arranged in clusters of from ten to twenty. Flowers in compact umbels of about a dozen, small white, fragrant. Berry, pea-like. This plant is hardy in a sheltered position, and is worth growing for its fragrance when in bloom. It is also worth growing in pots for the greenhouse. It has been called *A. grandiflorus*.

A. verticillatus.—An old garden plant according to Miller, but rarely seen in cultivation. Canon Ellacombe speaks highly of it as a hardy garden plant, and even recommends it as a vegetable, having tried its stout, fleshy young stems and found them palatable. With him the stems grow to a height of 15 feet in May, and they are not injured by spring frosts. The rootstock is woody, and the stems $\frac{1}{2}$ inch in diameter, woody with age, smooth, armed with short hard spines at the nodes, and bearing numerous slender branches from 1 to 2 feet in length. The leaves are hair-like, from $\frac{1}{2}$ to 2 inches long, and arranged in tufts of from two to twenty. Flowers small, succeeded by bright red berries, like those of the common Asparagus. There is a fine specimen of this species in a border in the Jardin des Plantes, Paris, where the stems grow to a length of 15 feet, and fruit freely. It is a native of Persia, the Caucasus, Siberia, &c.

A. virgatus.—First described by Mr. Baker in Saunderson's *Refugium*, from a plant collected in South Africa by Mr. T. Cooper. It was included among Mr. Bull's now introductions of 1879, and described by him as "a remarkably elegant feathery-looking greenhouse plant of fruticose habit, recently introduced from the Cape of Good Hope." It has a fleshy rootstock, erect fascicled stems 3 to 6 feet high, smooth, the upper half branched, the branches arching and clothed with hair-like dark green leaves $\frac{1}{2}$ to 1 inch long, arranged in tufts of three. Flowers small, white. Berries numerous, bright red, pea-like, one-seeded. In habit this is not unlike the common Asparagus. It grows vigorously either in a pot or planted out in a greenhouse.

A. comorensis (fig. 72, p. 181) has been referred to *A. plumosus*, but it is distinct from that species. It was first described and figured in the *Wiener Illustrirte Garten Zeitung*, 1883, p. 153. It resembles *A. plumosus* very closely in the form and arrangement of its frond-like branches, but it differs in its more robust habit, darker green colour, and the soft texture of its leaves. It also differs in fruit. Mr. J. G. Baker says this variety has not been botanically described, and is not a form of *plumosus* W. W.

Messrs. Dammann & Co., in 1890, and named by Regel in compliment to their manager. It was awarded a First-class Certificate by the Royal Horticultural Society in 1896. It has been called *A. sarmentosus* var. *Sprengeri*. I recently saw in an

American paper a description of a variegated form of this species "so heavily variegated with pure white as to have only a line of green on each of its small leaves, sufficient, however, to enable the plant to grow as vigorously as the type."

THE CINCHONA IN INDIA.*

(Concluded from p. 162.)

COLLECTION OF BARK.—In Sikkim, the periodical crops of bark will be got from thinnings and prunings from the fourth or fifth year up to the twelfth year, when the trees will be at their best, and it is then more profitable to totally uproot, and plant on fresh land, than to allow them to remain longer in the ground. The plan originally laid down was to plant out 2400 acres, and afterwards keep up this area by uprooting 200 acres annually and planting as much; but factory demands and other circumstances often compelled modifications, although in the main the plan was adhered to till of late years, when it was found that bark for the factory could be got from Travancore and elsewhere at less than it cost to grow in Sikkim, where planting operations have consequently been restricted of late. So Sikkim is gradually becoming more of a manufacturing than a cultivating centre for the East India Cinchona industry. When the trees are uprooted the bark of the larger roots, stems, and thick branches, is collected by peeling or beating off with wooden mallets. The smaller branches and roots are peeled by pulling them smartly through between two upright sticks stuck firmly and closely together in the ground when the bark comes away in ribbons. One or two heavy and cumbersome machines have been invented for collecting this small bark, but none has answered better than the two simple sticks stuck in the ground, which reminds one of the old story of the inventor and his cabbage-cutting machine which, the inventor declared, after all its good points had been explained and praised, cut Cabbages nearly as well as an old kitchen table-knife did. The bark is at once spread out to dry either in open or heated sheds according to the weather, and when properly dried and protected from damp and rot, will remain chemically unchanged for scores, or perhaps hundreds of years. Although the total uprooted plan is the most profitable for Sikkim, it is by no means so for countries geographically better situated for the growth of Cinchonas. On the Nilgiris, for instance, where several species thrive to perfection, the usual plan of collecting is that devised by the late Mr. McIvor, the first superintendent of the Madras Government Plantations, and usually known as the stripping process. By it the half of the stem bark is taken from the standing trees in vertical strips of about an inch and a half in width, from the collar up to the lower branches, or as high as may be thought advisable. If the trees are quite healthy the bark will part from the wood, at the proper season, of course, with the greatest ease, and leave the cambium layer uninjured.

RENEWED BARK.

Immediately after the stripping, the stem is covered thickly with moss, or other soft substances, to exclude the weather. From the edges of the cuts, and all over the surface of the cambium layer, the new bark forms evenly and with marvellous rapidity. In a year, or less, the renewed bark will be as thick as the original, and the remaining strips of original bark may be taken. Afterwards there may be annual collections of renewed bark for a considerable number of years. It is a curious fact that the renewed bark is much richer than the original in quinine, and consequently more valuable—often to the extent of 25 to 50 per cent. The plan requires generous treatment of the trees in the way of manure and cultivation, as only trees in vigorous growth will stand it; but it well repays the extra expenditure. For this discovery, and many other things, the Cinchona industry is heavily indebted to Mr. McIvor, perhaps more so than to any other man. Several modifications of his stripping plan have been tried, but none has succeeded so well. Perhaps the best of them is the shaving plan of the Dutch in Java. By it the outer half of the bark, all round the stem, is removed with spoke-shaves, and the stem covered up in McIvor's way. As it is well known that the great proportion of the alkaloids is located in the outer half of the bark, and very little in the inner, it is claimed for this plan that the whole of the useful factory bark can be removed by it, and the useless left behind to carry on the life-work of the tree.

It was also supposed to be less injurious to the trees, but, according to my experience, it is quite the other way. McIvor's plan, which was in operation many years before it, no doubt suggested it to the Dutch. Coppicing was tried in Sikkim, but was a commercial failure, as by it we lost the bark from the original roots, which usually amounted to quite one third of the whole out-turn. As the coppice shoots grew, they threw out new roots for themselves and the old ones died, and their bark was lost to us for ever.

FACTORY.

After the collection of the bark its plan of disposal had to be decided. The easiest plan, which also would have been the most profitable for the plantation for many years, would have been to sell the bark in London, and buy back the manufactured sulphate of quinine. But the Government, both in India and at home, were anxious to have it worked up at the plantations, so as to save the heavy transport charges, and at the same time render India independent of other countries for her quinine supplies. The Madras plantations being the oldest, were the first to attempt local manufacture, but after some years of continual failure gave up the scheme as hopeless. Their experiments were conducted by Mr. Broughton, the quinelogist to the Madras Government, who did most excellent and useful work in his

laboratory, but did not succeed so well in the factory. So his experimental factory was shut up and the bark sent for sale to London, where for many years it fetched most profitable rates. But the Bengal Government, who began their manufacturing experiments a little later than Madras, persevered till success was attained. Now Madras finds it pays better to adopt the Bengal plan of local manufacture than to ship the bark. There were numerous processes tried at the Bengal plantations, but it will suffice to give brief details of the three principal. The first, which was started in Madras, and afterwards tried in Bengal, was supposed to be the process then worked by the European makers of sulphate of quinine, who, however, gave no information on the subject, but jealously guarded their trade secrets which, of course, was perfectly legitimate and business-like, but plainly showed that no help in starting quinine making in India was to be had from them. By this plan the alkaloids were extracted from the bark by repeated hot digestion with water mixed with a little sulphuric acid, and afterwards precipitated from the acidulated liquors with milk-of-lime. The precipitate was collected on calico filters, dried, powdered and treated with strong, hot spirits of wine to dissolve out the soluble alkaloids from the insoluble sulphate of lime which formed the bulk of the precipitate. Then the alcohol, containing the alkaloids in solution, was mixed with a little dilute sulphuric acid and recovered by distillation for future use, and the remaining acidulated liquor treated in the ordinary way for the recovery of the quinine and other alkaloids. But the plan proved a miserable failure both in Madras and Bengal. It missed more than half the alkaloids, and was tedious and costly to work. This was unfortunate, as the chemicals required to work it were mostly procurable on the spot, an important consideration in a mountainous country, where carriage is difficult and expensive. Lime was found and burnt on the place; carbonate of potash was made from the ashes of *Artemisia* and other indigenous plants; and the alcohol from Indian-corn grown by the native squatters. The method of spirit-making adopted was the one in general use among the hill-tribes of the Eastern Himalayas, and differs from the ordinary process for making grain-spirit in dispensing with the mashing-step. The Indian-corn is coarsely ground, and heated till soft in as much water as it will soak up; then mixed with a small quantity of powdered ferment-cake, and put into baskets lined with bracken-fronds to ferment. When sufficiently fermented, the moist mass, with a little added water, is treated in the usual way in an ordinary still. Afterwards, the weak spirit thus got is put through a rectifying still to get it up to 60° over proof, the strength required. The ferment cakes are made on the same principle as Mushroom-spawn, and consist on Rice and the fresh, fleshy roots of a rather pretty-flowering Himalayan shrub—*Polygala arilata*—pounded up together. The soft mass is made into round cakes an inch thick, and sprinkled with a little old ferment cake in powder. The cakes are then packed away loosely among Fern fronds in a warm place, and the light excluded till the ferment fungus has permeated them, when they may be dried and stored for future use. It is a matter of common belief among all the tribes that whoever makes these cakes will be ever after afflicted with sterility, so only women beyond a certain age will make them. I do not suppose there is any real foundation for this idea, but in dealing with Eastern people it is always wise to respect their little prejudices and superstitions. The second plan to be described was a very simple one, and inexpensive to work, but unfortunately, like the last, missed a large proportion of the alkaloids. For a good many years, however, it did good, useful work, while a better was being devised. It was never used in the manufacture of sulphate of quinine, but only for making the medicine known in India as *Cinchona febrifuge*, which is a mixture of the whole of the alkaloids, both amorphous and crystallisable, found in the red bark. It is not so elegant a preparation as sulphate of quinine, but is an excellent substitute for it in malarial fevers. In fact, some of the best Indian doctors prefer it. For some years it was sold at less than quarter quinine rates, and was a great boon to poor people. In making it the powdered bark was repeatedly macerated in wooden tubs, with very dilute muriatic acid, for a few days at a time, and the resulting liquors mixed with a solution of caustic soda to precipitate the alkaloids they had dissolved out of the bark. After standing twenty-four hours, the precipitate was collected on filters, purified, dried, and powdered, which completed the operation.

The third process is the one now in operation in the East. It was started at the Bengal plantations in 1885, and at Madras a year or two later. Now it is being adopted by the Dutch in Java. It is a satisfactory process, as it completely exhausts the bark, and is not very expensive to work. The bark is reduced to an almost impalpable powder by means of disintegrators driven at a high speed by water turbines. The powder is then mixed with water, caustic soda, and shale-oil; heated by steam-coils to about 160° Fahrenheit, and kept constantly stirred by machinery for about an hour, when the stirring is stopped and the mixture allowed to rest quietly for an hour or two to let the oil—now containing the alkaloids—rise clear and bright to the top. The oil is then transferred to another vessel and thoroughly stirred up for a few minutes with sufficient dilute sulphuric acid to remove the whole of the alkaloids from it. After separation, by repose, the oil is drawn off for the next batch of bark, and the acidulated liquor, now containing the alkaloids in solution, is heated in steam-jacketed vessels, neutralised with a weak solution of caustic soda or ammonia, and set aside to cool and crystallise. To purify the crystals thus obtained they are collected, squeezed, redissolved in boiling water, digested for a few minutes with a little animal charcoal, filtered very

hot, and allowed to cool, when the sulphate of quinine crystallises out quite white and clean.

How to get the quinine to the very poorest in the outlying fever districts of Bengal at the lowest possible price, without burdening the public revenues, was an anxious question till the happy thought occurred to Sir Chas. Elliott, late Lieut.-Gov. of Bengal, to make use of the Post-office Department for this purpose. He ordered the quinine to be put up in sealed packets of 5 grains each, an ordinary dose, by jail labour, and sent to every outlying post-office in Bengal for sale at the low price per packet of 1 pice, which is the lowest coin in ordinary circulation in Bengal, and of the value of about a farthing. Not only is a stock of these packets kept at all the post-offices, but the postmen who visit the outlying hamlets have to carry them in their bags, and sell to any one who may ask for them. The postmasters and postmen get a small commission on the sale. A better or cheaper plan of distribution I cannot conceive, and the Italian Government have paid the Indian Government the compliment of adopting it for part of Italy.

Sulphate of quinine, quite equal in quality to the very best brands in the market, is now turned out by the Government at the Bengal factory alone, at the rate of about 1000 lb. a month. Not many years ago, the annual quinine indent of the Government of Bengal was less than this monthly output. Madras will soon be turning out as much as Bengal, and perhaps more. So the Government can take credit for freely accomplishing the task they set themselves when introducing the Cinchonas to India, as I trust I have proved to you without trying your patience over much.

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT GLEBELANDS, SOUTH WOODFORD.

In view of the number of clever growers who fail to get their *Phalenopsis* to thrive, it is a gratifying experience for any amateur to be able to say that his plants grow and flower perfectly. J. Guroey Fowler, Esq., may say this. His plants have been grown on in the same house from very small pieces, but they have now attained size and vigour rarely seen, and are about to produce a fine show of bloom. The *Phalenopsis* at Glebelands occupy the front stage of a rather low-roofed, warm, moist house, and are consequently tolerably close to the roof glass. A width of calico has been fastened to the inside of the roof, just over the plants, with a view to prevent drips, and this fact may have much significance in another direction. It has secured a subdued light which is favourable to the plants, and it minimises the risks attending cold winds and frosty weather. In the same house *Phaius tuberculatus* is growing freely and producing flowers, and a batch of *Odontoglossum Roezlii* in bloom is in grand condition.

The commodious intermediate houses contain a fine collection of *Cattleyas* and *Laelias*, of which all the best varieties procurable have been obtained; and also some good hybrid *Cattleyas* and *Laelio Cattleyas*. The number of fine specimens of *Cattleya Dowiana*, *C. D. aurea*, and *C. Warszewiczii*, have thriven admirably; and the larger specimens of the varieties of *C. labiata* are in good condition, though some of the smaller plants, many of them pieces taken from the larger specimens of fine varieties, seem to have suffered by the protracted dull season just passed through. All are, however, sound, and apparently only requiring good weather to push vigorously into growth.

A number of fine varieties of *Cattleya Trianae* are just passing out of bloom, also a charming white form of *Cattleya Schroderae*, with orange throat and a delicate blush hue on the front of the lip; a brilliant batch of *Laelia harpophylla*, and a few other of the lesser species.

In the centre of one of the houses is the famous plant of *Vanda (Esmeralda) Sanderiana*, for which Mr. Fowler was awarded a Gold Medal by the Royal Horticultural Society in October, 1896, when he exhibited it with 127 flowers. Last year the plant was not allowed to bear quite so many flowers; it is in good condition. Other subjects in bloom in the intermediate-houses were *Laelia cinnabarina*, the fragrant *Oncidium maculatum*, *Celogyne cristata alba*, &c.

In the large warm-house, with the *Vanda Sanderiana* in bloom, were some good *Dendrobium Wardianum*, *D. crassinode* and other *Dendrobiums*; a number of finely-flowered specimens of the *Phaius grandifolius*; varieties of *Calanthe Reginae* Nat.

* Paper read at the monthly *conversazione* at the Horticultural Club on Tuesday, March 8, by Mr. J. A. Gamble.

and of *C. rubeus*, which is rather small-flowered, is a very profuse bloomer, and follows the earlier and showier varieties; also *Saccolabium bellinum*, *Epidendrum Wallisii*, *Platylinis glumacea*, and a few other pretty species.

In the *Cypripedium*-house a nice plant of *C. bellatulum album* is about to bloom, and in flower are a very handsome form of *C. Sargentianum*, with flowers of a peculiar yellow hue, tinged with bright dark red, the inside of the lip being very handsomely spotted; *C. × Morganiae*, *C. Argus*, *C. × Harrisianum superbum*, *C. × Godseffianum*, and *C. Lathamianum*.

The attention of Mr. Davis, the gardener at Glebe-lands, is not absorbed by the Orchids, but every feature of the garden is under his management.

FLORISTS' FLOWERS.

LARGE-FLOWERING PELARGONIUMS.

PLANTS which have been growing during the winter in a house the temperature of which needs only to be a few degrees above freezing-point, now

the glass, but where they can have necessary ventilation.

Plants in smaller pots that are making a free growth will need a shift, especially if they are intended for late blooming. It is a good plan to stop the main, and any strong side-shoots, and then, when they begin to break into fresh growth, to at once re-pot them, but do not give them too large a shift. It is of the first importance to see the plants do not suffer for lack of water; if they are allowed to become dry at the roots, it soon manifests itself in yellow foliage and drooping leaves. Free ventilation is necessary as soon as the plants begin to make free growth, but avoid cold draughts. Syringe the plants overhead on fine sunny mornings, and stir the surface of the soil occasionally.

Then there are the pretty Fancy Pelargoniums, the "Ladies' Pelargonium," as they have been termed. How they originated is perhaps not known for certain, but they may be regarded as the feminine of the larger-flowering varieties. The Fancy Pelargoniums are of rather softer growth than their more robust relatives, and they need a warmer and closer atmosphere. Being of a more compact growth, and more free-branching also than the large-flowered types, they are all very free bloomers, some especially so; and it appears difficult to name a more effective specimen exhibition-plant than a large finely-grown and well-flowered example of the variety *Duchess of Teck*. *R. D.*

THE BULB GARDEN.

IRIS TECTORUM.

At present a great deal of attention is being paid to the cultivation of the Californian Irises with, it is to be feared, very indifferent results. A good many of these do not appear to accommodate themselves to the conditions under which they have to be grown in this country, or are lost because we have not yet discovered the cause of their failure in our hands. Yet the admirer of this valuable genus of garden plants need not prove inconsolable, as there is wealth enough and to spare of equally beautiful Irises, also comparatively little known, but more amenable to cultivation.

Among these the Japanese *I. tectorum* may be included, as, while it does not thrive everywhere, in other gardens it is satisfactory in every respect. In China and Japan it is grown on the roofs of the houses, whence the specific name of *tectorum* or Roof Iris. The name is that of Maximowicz, which has the priority of that applied by Hance of *tomiolepha* or Miquel's *crinata* (not *crinata* of *Aiton's Hortus Kewensis*). Its introduction dates from about 1872, or 1874, and it has been figured several times, among other illustrations being that in the *Botanical Magazine*, tab. 6118, and that in the *Gardeners' Chronicle*, N. S. vi., 37. In Mr. J. G. Baker's arrangement, it belongs to the subgenus *Evansia*.

In appearance *Iris tectorum* is very attractive, and one can hardly do better than quote Mr. Baker's description of the flower as follows.—"Perianth-tube above an inch long; limb, bright lilac, 2 inches long; falls with an orbicular blade, 1½ inch broad, narrowed suddenly to a short haft, variegated with darker lilac, white at the throat, with a deeply lacinated lilac and white crest; standards also spreading, nearly as broad, plain lilac, oblong, with a short claw. Style branches an inch long; crests quadrate, serrated. Explicit as this description of the flower is, it is not possible for it to give a full impression of the delicate and soft colouring of the large and beautiful blooms. The stem is about 18 inches long, and from two to three flowers are generally produced in a spathe. The leaves are pale green, about a foot or more in length, and what is known as ensiform, and the rhizome is thick and creeping.

The Roof Iris grows very well here on the top of a low rockery facing almost due south, and protected from the north by a low wall immediately behind. In this position it has been for several years, and has never failed to bloom freely each year. It has had

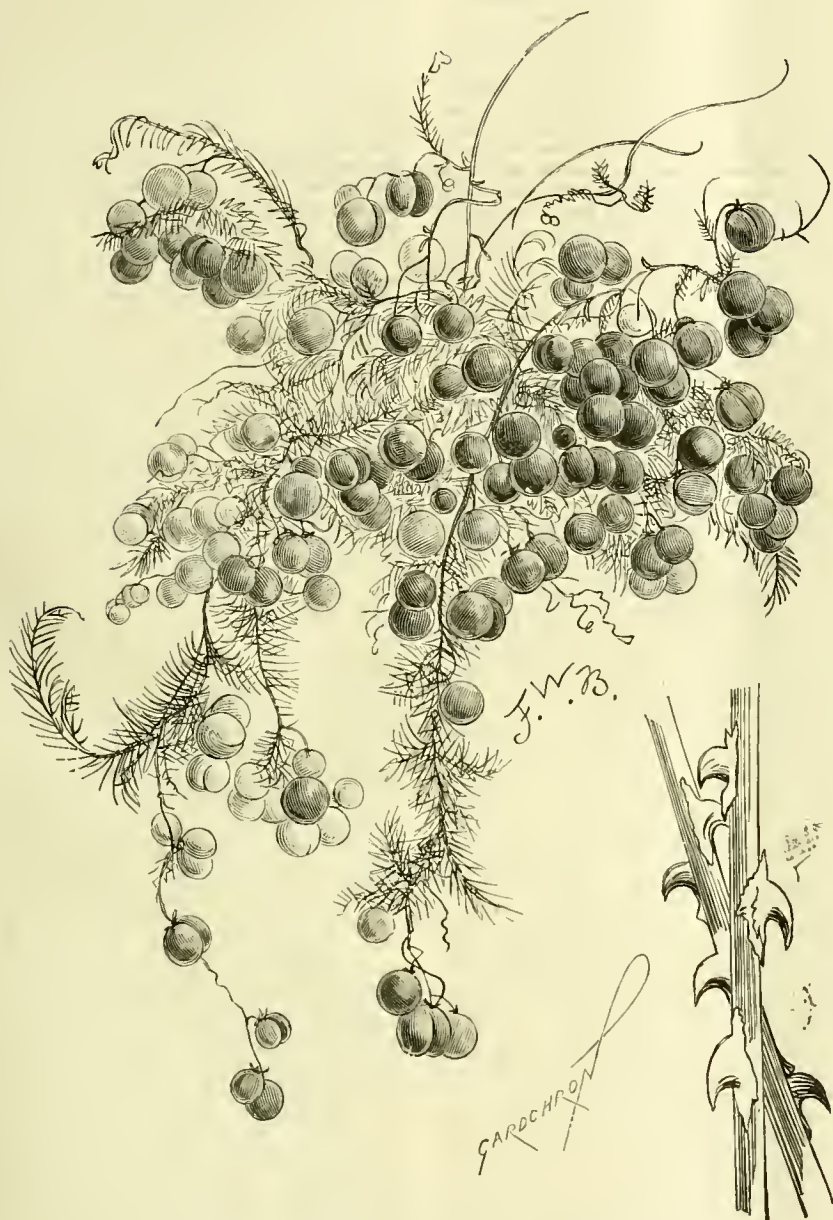


FIG. 72.—*ASPARGUS COMORENSIS*. (SEE P. 179.)

In a cooler house are a number of varieties of *C. insignis*, of which the most beautiful *C. i. Sanderi* is in as fine health as the more robust growing kinds. In this tolerably cool lean-to house, the *Cymbidiums* thrive well, and *C. Tracynum* is represented by a very sturdy specimen. Here, too, in flower are the best forms of *Lycaste Skinneri alba*, *Odontoglossum mulus*, and a healthy batch of *Dendrobium Jamesianum*, whose flowers when grown cool last for a very considerable time.

In the *Odontoglossum*-houses in bloom are a few *O. crispum*, *O. Pescatorei*, *O. Halli*, *O. triumphans*, &c.; and a number of *O. Rossii majus*, and some *Masdevallias* and *Sophranitis grandiflora*.

require some attention. Remove all decaying and even superfluous leaves. Two year-old plants that were given their final potting last October are becoming active, and producing shoots; and as these are sometimes numerous from the base of the centre of the plant, it is well to thin them out a little, and tie out the main shoots, so as to leave the centre of the plant as open as possible. This can be done by fastening a piece of bast round the pots just underneath the rim, and tying the branches down to it, bringing them down gently at first, so as to avoid the danger of snapping them off. There must be no neglect in the matter of watering, and the plants need to be kept scrupulously clean, and placed near

no protection, and its only enemies appear to be the slugs, which are plentiful here, and delight in eating through its young leaves, much to their disfigurement. A couple of rhizomes planted in light soil on the top of an out-house roof two or three years ago, have also grown well, but have not flowered. There they have, one is inclined to think, too little shelter so near the apex of the roof, and I purpose removing them a little lower down, where the cold northerly winds will not reach them. Although perfectly hardy, and standing without protection the severe winter of 1894-95, I am of opinion that *I. tectorum* is all the better for occasional division and replanting, either in spring, when growth begins to be made, or in autumn, soon after flowering. It increases quickly in the positions already mentioned, and it has also ripened seeds, young plants from which have not yet flowered. It is not unlikely that some variety of colour might ensue from raising this *Iris* from seeds, and hybridising with some other species would probably give some valuable garden plants. *S. Arnett, Carsethorpe-by-Dumfries, N.B.*

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorset.

Miscellaneous Species.—Plants of the distinct *Schomburgkia tibicinis* will now need a light position in a warm-house, and a moderate amount of water. *Rensanthera coccinea* should be removed from the resting-house to the warm-stove, and if any of the plants require to be shortened, the work may be done at once. *R. Imshoottiana* seems to thrive best suspended from the roof of the Cattleya-house; it is now producing flower-spikes, and should be kept just moist at the root. Plants of the dwarf growing *Lælia pumila* and its varieties that have been wintered in the intermediate-house, may now be removed to the warmest end of the cool-house; they should be kept moist at all times. *Brassias* produce flowers both singular and interesting. Such varieties as *B. verrucosa*, *B. brachiata*, *B. Lawrenceana*, *B. antherotes*, *B. caudata*, *B. maculata*, *B. lanceana*, and *B. Circiondiana* are deserving of culture. They are by no means difficult to grow, although frequently seen in poor condition. Use well-drained pots, and a compost of peat and moss. It is important to keep the plant well elevated above the rim of the pot, as the bulbs are liable to turn black and decay if in close contact with the soil. Place them in a warm shady position in the intermediate-house, and water them rather sparingly until the new roots push out, and the spikes commence to grow. Plants of the rare *Oncidium Brunkeianum* now starting to grow should be suspended at the cool end of the intermediate-house until warmer weather prevails, and watered freely until growth is completed. The pretty yellow-flowered *Oncidium cheiroporum* should be afforded fresh potting material if necessary, and suspend the plants from the roof of the Odontoglossum-house. Exceptional care is necessary in watering this plant, as the young growths are very liable to damp off if water lodge in them. *O. olivaceum Lawrenceanum* should be suspended at the warmest end of the cool-house, where their flowers will open perfectly. *Oncidium tigrinum* now at rest in this house, should be kept rather on the dry side, but not sufficiently to cause shivelling. *Disa grandiflora*, *D. Kewensis*, *D. Premier*, *D. racemosa*, *D. Langleyensis*, *D. Veitchii*, &c., now growing freely, may be given an abundance of water.

Temperatures.—Now that a large number of Orchids are beginning to grow, it will be advisable to slightly raise the temperature in the houses. The night temperature of the East Indian or hottest house may be maintained at 65°, and the day temperature of same at 70°, but a rise of several degrees more by sun-heat will be beneficial. During the middle of the day admit air whenever practicable; close the ventilators early in the afternoon, at the same time thoroughly damp the floors, stages, &c. The night temperature of the Cattleya-house should not fall below 60°, nor the intermediate-house below 55°, and the day temperature may rise from 5° to 10° above these figures, with a moderate quantity of air when the weather is mild. The Mexican division should also be kept at about 60° by night, rising in the daytime by sun-heat to 70° or 80°, with plenty of ventilation. Shut these houses up early in the afternoon with sun-heat, and thoroughly moisten the floors, &c. In the evening a few of the lower ventilators may again be partially opened, but not so much as to rapidly lower

the inside temperatures. The *Odontoglossum* or cool-house may be kept up to 50° at night, and a trifle higher, with plenty of ventilation, if the weather be mild. Fire-heat, especially in this division, should always be used as little as possible. A damping down both morning and afternoon will be sufficient for the present. When damping in the afternoon my practice is to close all the top ventilators, leaving the bottom ones wide open, and in the evening, if the external air is about 50°, the top lights are slightly opened again, and allowed to remain so all night, if the weather is likely to remain mild.

THE HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Grafting.—By means of grafting, healthy, vigorous Apple and Pear trees, of inferior quality as regards their fruits, or which are shy-bearing, may in a few years be changed to the choicest varieties. Many of the small varieties of the Apple are not much valued since the introduction of large fine-flavoured ones, and the trees of the former may at this season be headed-back and re-grafted, the method known as rind-grafting being employed if the trees are of large size, but the sap must be flowing freely before this kind of grafting can be done safely and successfully, otherwise the bark adheres to the wood, and cannot be easily detached. Cleft or wedge-grafting is the more suitable method; from ten to thirty, or a greater number of branches, may be grafted on one tree. First cut off the tops to a point where the wood is about 4 inches or less in diameter; if it is only 2 inches it will be better, provided the greater part of the grafts come on parts within 12 feet of the ground—if beyond this, the trees eventually get too tall for convenience of gathering the fruit. All the lateral branches below the cuts should be left intact for the first season at least. Some gardeners cut the trees back several months before grafting is performed, but this is unnecessary, and if any trees have been thus treated, two inches more of the wood must be cut off previous to grafting in order to have living healthy wood to work upon. If the cuttings to be used as scions have been removed as advised, they will be in an inactive but plump and sappy state. Place the butt-ends of the cuttings in a water-can provided with an inch of water while working. Clay to be used for covering the point of union must be got in readiness a day or two beforehand and placed under cover. It should be of the most adhesive kind, or it will crumble to pieces and fall from the trees; and if stones are present in it these must be removed by hand-picking. Having done this, take fresh cow or bullock dung one-third, and a little soft chaff, and mix the whole together with water by means of a spade till it be of the consistence of putty when fit for use. If but few grafts have to be inserted, cold grafting-wax such as Mastic l'homme Lefort, or one that is home-made, may be used instead of clay. Having cut the stock back as directed, make a downward slit in the bark for a length of 2½ inches, as deep as the wood; lift the bark, and slip in the prepared scion. A scion may be 6 inches long, with sloping cut made at its butt-end 2½ inches long. If the branch of the stock is 4 inches in diameter, three scions may be inserted at equal distances round the end; those 2 inches in diameter will take two on opposite sides, and 1 inch branches one scion. A modification of this method consists of carrying a strip of bark from the scion across the top of the stock and into a slit made on the opposite side. It is a method that gives much trouble, and is not necessary to ensure full union. When a scion is inserted, it must forthwith be bound round moderately tight with raffia or soft bast, and be clayed or waxed at once, or the two adjacent surfaces of the rind will become dry, and the union of the two hindered or prevented. In claying, make the central part an inch thick all round, tapering it off at both ends. Clay is easier to manipulate if the hands be moistened occasionally. Should drying winds prevail, or if there is doubt as to the clay adhering to the bark, wrap some freshly-gathered moss over all, and tie it on. Strong growing Apples make the best grafts for large trees, and fruit is obtained much quicker in this way than by planting young trees. The grafting of Pears on walls or in the open, and Pears on the Pear-stock and double grafted, is similarly performed. Plums and sweet Cherries are likewise grafted at the end of the month. It is always advisable to wait, provided, of course, the cuttings have been taken some few weeks, and kept fresh and moist in a cold situation, till the stock is on the move, before proceeding to graft.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Summer and autumn-flowering Chrysanthemums.—For affording nice effects in large beds, and flowers for cutting, these plants are of no small use. Greatly improved of recent years in colour and habit, they can now be obtained in numerous varieties that flower from the month of July till late in the autumn, when they are cut off by frost. Now is the time to plant.

Irises.—For planting in borders and as edgings by the sides of woodlands and walks of lakes and streams, than Irises, of various species of exquisite colouring, there are no more suitable plants. Irises when planted alone or in company with Narcissus, Bluebells, Primroses, &c., that are purchased at small cost and readily raised, which need but little attention beyond keeping the ground free from weeds, always impart a pleasing effect when in bloom, and they are not unsightly in the flowerless state.

Pentstemons.—If seeds of this old inhabitant of the garden, that is rapidly gaining in popularity, be sown this month in heat, and the seedlings grown on without check, and planted out in the month of May, flowers may be looked for from the middle of July to the end of September. The plant delights in sunshine but is not fastidious as to soil, although well-tilled and manured soils afford the best results.

Potentillas deserve to be more commonly grown in beds and borders, the foliage being pretty, and not unlike that of the Strawberry, and the flower neat in appearance and bright in colour. Plants raised from seed sown last year may now be set out where they are to flower, allowing 1½ foot from plant to plant, or from neighbouring plants.

Salpiglossis.—Seeds should be sown in heat at once; and as soon as the seedlings may be handled prick them out, and they will be ready to put out in the beds about the end of May. If the beds are sufficiently manured, the plants will make a beautiful effect in the flower garden throughout the summer and early autumn months. The flowers are very desirable for cutting also, some of them having beautiful tints and refined pencilling.

Salvia patens.—Tubers which have been rested during the winter should now be potted, or put into boxes and placed in warmth. If it is wished to increase the stock, take short-jointed cuttings as soon as they are obtainable, and insert them in sand, or sandy soil, in the propagating-pit. The cuttings are best placed around 5-inch pots.

Tigridius.—The flowers of these, although of short duration, are exceedingly beautiful, the colours being creamy-white and chestnut red, purple and lilac, scarlet, rose, and orange, and orange spotted on a scarlet ground. When seen in the full glare of a summer's sun, the colours are very vivid, and the blotches and pencillings so varied, that they are well worthy of culture. Plant in good sandy loam in a sunny place.

General Work.—The mowing-machine will generally be in constant use, taking the precaution not to use it before the land has been well swept and heavily rolled. Trees and shrubs newly planted will need copious applications of water, and an occasional wetting with the garden-engine, doing this last late in the day. Let no weeds remain long in any border or flower-bed, whether occupied or vacant, but hoe and hand-weed diligently. Sow Sweet Peas, and still continue to plant out Violas and Pansies; put beds and borders in readiness for sowing seeds of annuals early next month. Afford bedding Pelargoniums and Calceolarias the fullest ventilation in mild weather, but do not check growth by the admission of cold air. Prick out seedling bedding plants, and continue the repotting before crowding spoils them, of Hollyhocks and tuberous-rooted Begonias. If the Begonia seed was sown early in the year, the seedlings will demand unremitting attention in the matter of pricking out, potting them into thumbs and 60's, and bringing these on in an intermediate-house temperature, and in such a manner that drawing cannot take place.

THE KITCHEN GARDEN.

By J. W. McHATTE, Gardener, Strathfieldsaye, Hants.

Celery.—Any of the white and pink varieties may now be sown on a mild hotbed thinly, or in seed-pans and boxes, placing the pans and boxes in a temperature of 50°, affording shade from strong sunshine till germination takes place, when full light and air in amount in accordance with the weather should be admitted. When the seedlings are large enough to be conveniently handled, prick them out 4 inches

apart in a cold frame in a mixture of one-half rich soil and one-half leaf-soil, and spent Mushroom-dung, placed above a shallow layer of manure 3 to 4 inches thick. When pricked out afford water with a fine rose-can, and syringe the plants when closing the frame in the evening till complete establishment has taken place. Afterwards afford air freely, and remove the lights entirely on warm showery days. A sowing of any of the red varieties for winter and spring use may be made in about ten days after the above sowing. The best white Celeries are, Incomparable Dwarf White, and Sandriogham Dwarf White; the best pinks, Veitch's Early Rose, and Ivory's Nonsuch Pink; of reds, which are mostly very hardy, there are Major Clarke's, Standard Bearer, and Williams' Matchless. Where Celeric is in request a sowing may now be made in the manner described, and the plants treated in the same manner as Celery in the early stages.

Cucumbers in Frames.—Seeds may be sown singly in 60's of Rochford's Market Favourite, Lockie's Perfection, Telegraph, or Tender-and-True. When a true leaf or two show repot in rich mellow loam and leaf-soil, in equal parts, when they will be ready to plant out on hot-beds made up for frames, or in a brick-pit with hot water for top-heat. If a frame hot-bed, let it be made 1 foot larger than the box on all sides, and at the least 3 feet high at the front and ½-foot more at the back. Let the materials consist of equal parts stable-dung and Beech or Oak leaves, and when the heat becomes steady at 80° put on the frame and make a hill or bed under each light of loam and rotten dung or leaf soil in equal proportions. The bed should not be less than 9 inches deep, or the hillock less than 12 inches.

Sorrel.—The old stools, if the stock of plants needs replanting, should be taken up with a spade and divided, planting the rooted bits in rows, 12 inches apart and 6 inches from plant to plant, affording water to settle the soil, and a mulch of spent manure between the rows. The flower-stalks should be cut off as fast as they appear during the season. Seeds of Sorrel of a broad leaved variety may be sown at this season in drills 12 inches apart and ½-inch deep, and the plants thinned out to 6 inches apart. One-year-old plants are more productive of leaves than older ones.

Scorzonera.—This vegetable requires a piece of ground which has been deeply dug or trenched; and the seed is usually sown in drills drawn at a distance of 15 inches apart, 1 inch deep. Two or three hundred well-grown roots suffice for the needs of most families. Salsify is a similar kind of crop, and needs the same sort of treatment.

Turnips, Potatoes, and Spinach.—Make another sowing of seeds of white Turnips, as Snowball, or other quick growing variety, and likewise of Spinach in larger breadths than earlier in the year, and protect the early sowings from frost and seed-eating birds. Plant early and second early Potatoes on warm borders and in the open quarters of the kitchen garden.

Forcing Vegetables.—Let the early vegetables in frames and pits have all needful attention in the matter of airing, watering, thinning, &c., being careful to guard against giving any check to growth; and make more hotbeds for salading and vegetables if necessary.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Grape Vines.—Those Vines that are carrying Grapes which are at the final stage of development and colouring, should be forced till the fruit is ripe, by employing a warmth at night of 65° to 68°, and by day of 75°, by the heating apparatus, allowing the day warmth to rise to 85° during the hours of sunshine. As ventilation conduces to good colouring, air should be admitted, mostly by the top-sashes, &c., in mild sunny weather, and with much caution owing to the extremely changeable nature of spring weather. Damping down must be done several times a day according to the stage of colouring and the state of the weather, always endeavouring to maintain a genial state of the air in the house. The doing of this will tend to keep red-spider in check. During the early stages damp the surface of the border, and the paths, walls, &c., once to three times a day, according to the amount of sunshine or lack of it; less often in dull weather; during the second stage, twice a day; and in the last stage, when the fruit is nearly ripe, once on fine days only. Vines with Grapes at their full size, or approaching that stage, require more water at the

root than at any other time, it is then that manure is of the greatest use, to pot Vines or permanently planted ones. In the case of pot Vines an examination of the soil should be made every day, and no approach to dryness permitted. Keep a sharp look-out for red-spider on the leaves of both potted and planted out Vines, and if any are found sponge the leaves with soap-suds, in which soft-soap at the rate of 2 oz. to the gallon of water is dissolved. Should it appear to such an extent as to be likely to cause injury before the fruit is ripe, paint the heating apparatus with flowers-of-sulphur and lime, and raise the temperature of theinery to 85° or 90° at night for a short period on three successive nights, taking care that the pipes are not heated so much as to cause injury to the leaves; and in order to lessen the risk, ventilate theinery freely the previous afternoon, so as to dry up all moisture on the leaves of the Vines. In order to use sulphur safely, the Grapes should be in a forward state, otherwise there is a risk of causing rust.

Vines started in the Month of January.—The bunches on these Vines will require to be reduced in number, and the berries thinned when they have attained the size of Radish-seeds, following out generally previous instructions concerning Vines at this stage. The thinning of the bunches differs according to the variety, attention having to be paid to the general shape of the bunch and the size to which the berries attain. Compact bunches, such as those of Muscat of Alexandria, Mrs. Pince, and Madresfield Court require severer thinning than those of Black Hamburgh and Foster's Seedling.

Vines in Bloom.—In order to favour the setting, let there be enough artificial heat by day, and as much ventilation as the weather permits with safety for Hamburgs and other free-setting varieties. The internal warmth may on sunless days rise to 75°, and for shy setters to 80° on sunless days, or during periods of sunshine 6° to 10° higher than these figures are permissible. On fine days, one damping down in the afternoon will suffice till the flowering stage is past.

Vines at a Later Stage.—The strong shoots at this season are very brittle, and tying down has to be done with care, going over the shoots several times, bringing them down a little each time till they reach the trellis, and using for this purpose broad strips of bast. It is carried on more safely in the middle part of bright days, when the shoots flag a little, than at other times. Main laterals carrying fruit, stop two joints beyond the bunch; and those required to run on to fill up bare spaces should not be stopped at all—at least, for the present.

THE APIARY.

By EXPERT.

Starved Bees.—It would be difficult to name a more annoying discovery to a bee-keeper than to find on some fine morning in March or April, a strong colony of bees—strong and prospering in everything save stores—dead from famine. Yet this is not so uncommon an occurrence as many suppose when bees are in thoughtless or careless hands, and it should render it unnecessary for us to do more than mention it in order to impress on readers a caution as regards the risk mentioned above. Therefore, where any uncertainty exists, move the quilts far enough back to expose the outside frame on one side of the hive. Raise the comb as high as will enable you to examine its food contents, and do the same with the outer comb on the opposite side, and if between the two there are less than three or four pounds of stores, lift out both frames, carry them indoors, and, first laying the frame of comb in a dish, pour into the cells a pint at least of good warm syrup made fairly thick. Care is needed in filling the cells with the syrup, but it can be done by holding the vessel high up and letting the liquor fall in a thin stream. Replace the combs when filled, preferably at night-fall, or when bees have done flying for the day. A week or so later give syrup-feed in the ordinary bottle-feeder.

Queenless Stocks.—The month of March being the natural season of the year when bees in all healthy colonies are impelled to join in the now rapidly increasing work of brood-rearing, stocks which from any cause have been rendered queenless will at this season become restless and unsettled. They apparently feel that something is wrong, as a child does when "mother is out." In fact, the bees of some queenless hives, being themselves motherless, occasionally get so disheartened and dissatisfied with the home that they desert it in a body. An exodus of this kind is usually termed a hunger swarm, though it not seldom happens that plenty of food is left

behind in the deserted hive. At times, too, even when no departure is resolved upon, queenless bees at this season are often noticed to be acting differently to those of prospering colonies. They become uneasy, running or flying about the hive entrance after normal stocks have ceased work for the day. Sometimes during working hours an odd bee will be seen hurrying in with just a mite of pollen on its legs, as if desperately trying to show how conscious it is of the work that should be making progress in March. Some lots, again, will show them-elves to be queenless by the listless way in which they disport themselves, compared with those of neighbouring colonies, and this condition is occasionally accompanied by dysenteric symptoms, shown in the specking of flight-boards, owing to the abnormal conditions which surround queenless bees. In all these cases the only needful thing to do just now is trying to keep the bees in good heart by giving a little warm syrup occasionally until the time comes—three or four weeks hence—when they may be united to such other stocks as need bees to assist in keeping warm the daily increasing breadth of brood now being reared.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Chrysanthemums.—The plants should be now making good progress, and they must not be stinted in the matter of pots, as once root-bound they make slow headway. Varieties differ much in manner of growth, and the stronger growers require necessarily earlier repotting than those that are weak growers. It is, therefore, necessary to pot those that are in need of a shift into larger pots, which a very slight examination will suffice to show. Plants intended to form bushes, should have the points of the leading shoots pinched in order to make them break freely. The soil for this shift should be rich, and consist of good loam with some leaf-mould, sand, and a sprinkling of bone-mesh and wood-ashes. Let these be well mixed together, but not sifted, and placed in the pots very firmly—rammed, in fact, if the soil be not too moist, plenty of space being left for affording water, and good drainage provided. Place the repotted plants in a cold pit or frame near the glass, affording air when the weather is not actually frosty, but avoiding cold draughts. An occasional fumigation will kill greenfly, that sometimes infests these plants whilst they are under glass. The plants should receive no water for two or three days after the repotting, but merely a good damping overhead daily.

Shading.—Most of the inmates of the stove will need protection from the direct rays of the sun from this time onwards, especially those that have been repotted. A slight shade on the greenhouse during the warmest part of the day will tend to lengthen the flowering period of the plants therein.

Propagation, &c.—Seedlings and cuttings must be potted, single or otherwise, before they spoil from over-crowding, or damp-off, and only a slight delay in carrying out this operation may end in serious loss. Batches of plants should still be brought to the flowering stage in gentle heat; but taken to a cooler place to expand their blossoms. Plants of Azalea mollis, as they go out of flower, may have ungainly shoots cut back, and the weak ones removed, and be placed in gentle heat to make their growth, and after that is made, gradually harden them off, and stand out-of-doors in May.

Seed-sowing.—Let pots, pans, and boxes, be got in readiness for sowing the seeds of a variety of subjects that must be raised at this season. Let every pot, &c., be well drained and clean, and sift the soil that is to be used, usually a mixture of loam, leaf-mould, and sand, and place the smaller sifting over the crocks to the depth of 2 or more inches, according to the nature and requirements of the seed, and the seed-pots should be filled to within half an inch of the rim, the soil being pressed down firmly with the hand, and made level and smooth. Before sowing, let the soil be afforded a thorough application of water, leaving the sowing to be done the next day. In the case of very minute seeds, no covering of soil or sand is needed, but when the mould is getting dry sink the pot, &c., in a vessel of warm water till water appears on the surface, or use the finest rose on the spout. Some seeds need no further warmth than that of the greenhouse, others must be raised in hotbeds more or less hot, and all should be carefully shaded, either separately with sheets of brown or oiled paper, or collectively with mats, &c. No seed-pot should be placed in proximity to the heating apparatus, or in a draught. Further directions will be given concerning seedlings in a future Calendar.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

MEETINGS.

SATURDAY, MARCH 26—Roy. Bot. Soc. Gen. Meet.

TUESDAY, MARCH 29 { Spring Show of Shropshire Hort. Society.
Exhibition of Royal Hort. Soc. of Southampton (two days).

WEDNESDAY, MARCH 30 { Royal Bot. Soc. Spring Show at Regent's Park.

SALES.

MONDAY, MARCH 28 { Roses, Stove and Greenhouse Plants, Begonias, Tuberoses, &c., at Protheroe & Morris' Rooms.

TUESDAY, MARCH 29 { Hardy Perennials, Japanese Iris, Roses, Carnations, &c., at Protheroe & Morris' Rooms.

THURSDAY, MARCH 31 { Japanese Lilies, Palms, Gladioli, Begonias, Tuberoses, &c., at Protheroe & Morris' Rooms.

FRIDAY, APRIL 1 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—44° 9'.

ACTUAL TEMPERATURES:—

LONDON.—March 23 (6 P.M.): Max., 50°; Min., 36°.

PROVINCES.—March 23 (6 P.M.): Max., 51°, Scilly; Min., 33°, Aberdeen.

Cold winds; light frosts; rain and sleet.

The Abuse of
Manure.

THE time was, and that not so very long ago, when the statement that a given plant-disease was caused by a fungus, was considered by the horticulturist as nothing short of ridiculous, and a combination of sympathy and incredulity might often be detected in the face of the recipient of such information; this was so, so late as the time of "M. J. B.," the famous initials in these columns of the Rev. M. J. BERKELEY. At the present day the reverse is the case, and those engaged in the cultivation of plants are inclined to attribute every failure in promoting successful culture to the baneful influence of some fungus. After the truth had once been realised, the rush to the opposite extreme was just what, from analogy in other matters, would have been predicted. It now remains for the gardener, without becoming an expert mycologist, to familiarise himself with the broad principles relating to the habit and mode of life of parasitic fungi, to an extent that will enable him to determine with a fair amount of accuracy the symptoms of fungous disease; to know how to ameliorate it to guard against its spreading to other plants; and finally, to express in an intelligible manner the symptoms exhibited, when asking the advice of a specialist.

For several years past, numerous examples of diseased roots have been received for examination, and in almost every instance a fungus was supposed by the sender to be the cause of the disease. The symptoms were in all instances identical, the rootlets being completely destroyed, and the remainder of the root waterlogged, and brown in colour. Roses, Vines, and Strawberries, formed a considerable percentage of the plants examined, microscopic examination of cultures of the diseased

roots proved the entire absence of a parasitic fungus in every instance. As usual, the plants were said to have been cultivated in the most expert manner, implying that no possible blame could attach to the cultivator; heavy mulching practice, and followed by the best of results for one or two seasons, and just at the time when hope for the future seemed assured, the plants died, and without any apparent reason. Suspecting manure to be directly or indirectly the cause of the mischief, the following experiment was carried out by Mr. MASSEE.

A row of eight bush Roses of about equal size, and apparently quite healthy, was selected for experiment. The soil round each of four of the bushes was covered for a distance of 18 inches from the stem with a thick layer of stable-manure in the spring, the manure being covered with a thin layer of soil for appearance sake, and also to prevent loss of fertilising material from the manure. The four remaining bushes were left without manure placed over the roots, but were supplied with liquid-manure obtained from the same quantity of manure used in dressing the ground round the other four bushes.

During the first season the quantity and quality of bloom produced by the four bushes that had been manured round the roots, was most decidedly better than in the case of the trees supplied with liquid-manure. The same process was repeated the second spring: the first result was that there was no appreciable difference in the number of flowers on the differently-treated bushes; the second result manifested itself the following spring by the untimely death of the four trees treated with manure on the ground round the roots. Strawberry plants were killed by similar means.

Examination of the roots of the dead plants revealed the symptoms mentioned above. The plants had died of asphyxia or suffocation. So long as the manure allowed evaporation of water from the surface-soil to take place, and atmospheric air to enter, all was satisfactory; but eventually the manure became so sodden and compact that this necessary interchange was rendered impossible, the formation of injurious organic acids in the soil was favoured, which, combined with excess of water and lack of air, resulted in the death of the plants. In the above experiments it must be added that the manure and soil round the roots was never broken up—a state of things that would not be followed by a gardener; nevertheless, the above experiment can only be considered as an extreme condition of what too frequently happens, and the final result is but a matter of time. It appears certain that plants of all kinds are, to say the least, enfeebled, if not actually killed, by an excess of water and consequent lack of air; as a proved illustration, Orchids may be cited, where the roots have been too compactly enveloped in saturated moss.

CONSERVATORY AT "THE CLIFF," SHANKLIN, ISLE OF WIGHT.—We give our readers the reproduction of a photograph by Mr. J. MILMAN BROWN of a conservatory at what was the residence of the late Mrs. HARVEY, which exhibits in its arrangements, and breadth, and the fine pieces of statuary, several pleasing features, notably, the pedestal for supporting plants in pots or vases; the different levels of the floor rendered necessary by the site, or introduced for the sake of variety, and the group of small plants at the base of the central figure. The visitor will be enabled to distinguish among the plants well-cultivated Brugmansias (Datura), Cypripediums, doubtless C. insignis, to the right and left of the foreground; with Chrysanthemums, Dracæa australis, Camellia

japonica, and Orchids in hanging baskets. We are indebted to Mr. CONN, the gardener at "The Cliff" for the photograph from which the illustration was taken.

HIGHGATE AND DISTRICT CHRYSANTHEMUM SOCIETY.—A committee meeting was held on Thursday evening, March 17, when the dates of the Floral Committee meetings for this year were settled, viz., October 31, and November 8 and 14. The Floral Committee, viz., Mr. T. BEVAN, Mr. J. BROOKS, Mr. J. BROOKS, Jr., Mr. BURT, Mr. MATHEWS, Mr. TURK, with the president, the treasurer (Mr. J. MCKERCHAR), and the secretary (Mr. W. E. BOYCE), as ex-officio members, were then elected.

DIRECTIONS FOR NAMING PLANTS.—"The best specific name is a short Latin adjective of an agreeable sound and easy pronunciation." This is what the zoologists say, and it applies with at least equal force in the case of botanists and others who name plants. They are nicest when short and sweet, serving their purpose quite as well as when long and of "disagreeable sound." It is generally a mistake, as we think, to attempt to mix up two things, a denomination or label and a description or history. The two things should be kept apart, unless in exceptional cases.

MYRSIPHYLLUM.—According to M. GEORGES TRUFFAUT, in the *Revue Horticole*, M. asparagoides, the "Smilax" of the American nurseries, contains a larger percentage of nitrogen than any other plant he has examined. It is also rich in chlorine and sulphuric acid. M. TRUFFAUT accordingly recommends the application of a fertiliser containing a mixture of sulphate of ammonia, nitrate of soda, and ammonia hydrochlorate [the proportions are not stated], and applied in solution at the rate of 2 grammes per litre. In subsequent years, phosphoric acid and sulphate of potash may advantageously be added to the nitrogenous manure.

MR. BARR.—On the 29th inst., Mr. PETER BARR, V.M.H., sets sail on his voyage round the world. His Daffodil-travels in the Mediterranean regions have begotten a taste for globe-trotting at a period of life when most men are best pleased to remain at home. We trust his voyage will be a prosperous one.

TERMINOLOGY.—If, says SACHS, the prejudice against descriptive botany still frequently existing, even in scientific circles, is ever to cease, it will be well entirely to get rid of superfluous nomenclature. The undesirable nature of glass-houses for those who cast stones can hardly be better exemplified. New names for old facts, or facts presented in a new light, are nowhere so abundant as in modern treatises on vegetable physiology, where new terms are constantly given to facts and phenomena without any reference to previous history or priority. Descriptive botanists are often bad enough, but they do work *secundum artem*, and with a due regard for precedence and priority; the physiologists obey no such rules.

M. FAGUET.—This celebrated botanical draughtsman has, as we learn from the *Revue Horticole*, retired from his post at the Jardin des Plantes. His drawings were as accurate as they were refined, so that they will be much missed. His successor is Madame MADELINE LEMAIRE, who is highly spoken of by our contemporary.

CAPE FRUIT.—The Union Steamship Company's vessel, *Moore*, has arrived with a cargo of Grapes and Pears, numbering 742 boxes. The first lot of 297 boxes of Grapes and 20 boxes of Pears, consigned to Mr. HUDSON, arrived in excellent condition, and were of first-class quality; the second lot of 248 boxes of Grapes, also to Mr. HUDSON, were not of the best quality, and turned out wet and nasty. The third lot, of 68 boxes of Grapes and 23 of Pears, were consigned to WOODHEAD, PLANT & Co.: the Grapes of medium quality. Number four lot to WHEATLEY & Co., 56 boxes of Grapes, were of medium quality. There were also 30 private packages. As to the wet Grapes, Mr. HUDSON says that he considers this has



FIG. 73.—VIEW IN THE CONSERVATORY AT "THE CLIFF," SHANKLIN, ISLE OF WIGHT. (SEE P. 184.)



nothing to do with the cool-chamber, but with the condition in which they were shipped. The efficiency of the cool-chamber, in this instance, is proved by the excellent condition in which the first lot of Grapes turned out.

TASMANIAN FRUIT.—We are informed by the Peninsular and Oriental Steamship Company that they have received the following "wires":—Shipments by the *Cuzco* are 10,000 boxes, and by the *China* 16,000 boxes. The *China* is due about April 9. From Melbourne we learn that the *Oruba* has shipped 6,900 boxes, the *Victoria* 10,000 boxes. The latter vessel is due about the 24th proximo.

WOOD-PULP IN FLOOR-CLOTH.—There would seem to be a fair prospect for this material in the near future. Some floor-cloth we have seen, derived entirely from pulp, gives promise of elasticity and durability. Perfect success has not yet been obtained, but those who have it in hand seem to be pretty sanguine of the result of their labours. As to taking colour, the patterns we saw ranged in shades of pale grey up to dark olive worked out in diamonds; but probably any number of tints may be retained on the wooden surface—when the composition of the fabric is perfected.

WEST INDIAN PLANTATIONS.—Everyone knows how fatal to the prospects of the Sugar industry in the West Indies the cultivation of Sugar-Beet has proved. Whether that competition be fair or unfair matters not here, we have but one instance to note here of the havoc consummated. Not long since the owners in the country of a large Sugar-growing estate in Demerara gave up competition and sold the land for one-fifth of the price originally paid for it. Since the first pound of sugar was turned out a sum of about £500,000 has been expended in machinery and the general charges incident to the working of a big concern; of course, this has not been lost, but we do not know that profit has been made commensurate with the outlay. We are informed by a correspondent that a member of the firm retired from sugar-growing, is now in Louisiana trying to make a good bargain for the splendid machinery now lying idle, and which would not be taken to by the purchaser of the land. Pity 'tis, 'tis true.

WOOD PULP FOR PAPER.—The requirements of the paper trade, according to a paper read recently before the Society of Arts, are likely to become a great drain upon the forests of Scandinavia, the United States, and Canada. Judging from the present rate of increase, the quantity of wood required will, before long, assume enormous proportions. It was estimated a few years ago that in the United States of America alone 500,000,000 cubic feet of timber were consumed annually, representing the destruction of 100,000 acres of forest. It was also estimated that each day the *New York World* consumed timber equal to seven acres of an average forest. The world's timber suitable for paper-making is not inexhaustible, and we may some day be in a position in regard to wood as this country was at the end of the last century in regard to the supplies of rags.

THE NATIONAL CHRYSANTHEMUM SOCIETY.—The adjourned annual meeting on Monday last was prolonged to a late hour of the night, and considerable interest, which occasionally showed itself in heated discussion, characterised the proceedings. Under the circumstances, the decisions arrived at by the meeting were in many respects the best that could be made. The committee permitted the expenditure during 1897 to exceed the income, but at the annual meeting three weeks ago, owing to the wise councils of Mr. Gordon and others, it was resolved to face the matter fairly, and hence the financial statement was referred to the committee, who were instructed to pay all debts contracted during the year, instead of carrying some of them over, and thus showing a false reserve fund. This was done, the reserve fund being thus reduced by about £50. Such being the case, it was the imperative duty of the members to pass the

accounts as amended. They might well regret the necessity to touch the reserve fund, but at the same time they have acted honestly; and in the future, we doubt not, there will be greater supervision exercised over the expenditure. Already the estimates for the present year have been modified to such an extent that a balance of £22 8s. in favour of the receipt is indicated, and this has been done by reducing the money offered as prizes at the exhibitions. The committee should also be able during the season to effect considerable saving in minor matters. It was decided to appoint a general secretary, at a salary to be fixed by the committee, and that in future the secretary will be an officer of the Society without the privilege of voting. Considerable opposition was made to the re-election of Mr. R. DEAN to the position, and many charges have been made against him. But it appears to us that the committee are to blame in a greater degree. Instead of attending to matters themselves, they have permitted the Secretary to manage them single-handed. The committee is or should be the governing body, but if its officers dictate to the committee its policy, then the members are sadly wanting in business qualities. Now that the Secretary's position is to be clearly defined, the re-election of Mr. DEAN is the best that could have been done. Mr. R. BALLANTYNE, the new Treasurer, will have no difficulty in at once assuming the duties as well as name of his office. Most of the other officers being re-elected, the society ought soon to be in better working condition than for some time past. Several amendments were made to the revised rules, which will tend to the society's welfare. There are many questions the new committee will have to face, including the opposition there still exists to holding the exhibitions at the Aquarium, and the policy of reducing the number of shows by omitting at least the one usually held in September. In any case, whether the exhibitions are held at the Aquarium or elsewhere, we hope that on no future occasion will the most convenient space in the building be let to "sellers of sticks and manure," as one member stated, and the Chrysanthemum-blooms be relegated to the galleries.

AN APPEAL TO MASONS.—In connection with the coming election in May next of pensioners to the Masonic Benevolent Institution, we have received from Mr. W. NAPPER the following appeal on behalf of the widow (aged 60 years) of the late Dr. W. R. WOODMAN, P.G. Swd.-Br. (Eng.). Dr. WOODMAN was a very respected member of the nursery trade in Exeter, and we doubt not his widow will be given cordial support by our readers who happen to be Masonic nurserymen or gardeners. "Dr. WOODMAN was initiated in St. George's Lodge, No. 112, Exeter, in the year 1852, and was a P.M. and for eighteen years a member of No. 441, Starcross, Devon. He was a P.M. and for thirty-three years a member of Grenadiers Lodge, No. 66, London. For six years a member of "Britannic," No. 33, London, and also a member of other Lodges. His membership of Chapters was equally long and valuable. He was also a member of the K.T. and R.C. degrees. He was a Governor of the R.M.B. Institution, as well as that of the R.M.I. for Boys, and a Vice-Patron of the R.M.I. for Girls, having served several Stewardships. At his death in 1891, his widow found herself absolutely penniless."

TITMICE.

(Concluded from p. 186.)

WE now come to three species of tits that are undoubtedly useful to agriculture, because they are not only more numerous than the other members of the same family, but they live near human habitations, and are found in every garden and orchard. In this trio the first place may be given to the great tit. The great tit is a voracious devourer of insects of all kinds and in all stages. Yarrell remarks that it is indefatigable in search of food, and, being fearless in disposition, it may be readily observed climbing the trunks of trees, or hanging suspended from the under surfaces of branches while examining every

cavity, leaf, or bud that is likely to afford shelter to any of its numerous insect-prey. This description of its habits is corroborated by Seeböhm. Late in the autumn, small seeds and fruit form part of its diet; but, according to the last-mentioned authority, its young are fed entirely on small caterpillars and grubs. The French naturalist, Brocchi, in his *Traité de Zoologie*, says:—"Knowing the habits of these birds, it is easy to understand that they should be ranged among the best helpers of agriculturists, who sometimes entice them to frequent orchards and gardens by making artificial nesting-places." Brocchi mentions also that on a certain property where the fruit-crop was regularly devastated by insects, tits were attracted by artificial nests distributed in great numbers throughout the orchards, and that after the arrival of these birds the crops were abundant.

The great tit (*Parus major*) is a beautiful bird, about 6 inches long, and usually builds its nest in holes in walls, trees, decayed posts, and similar places. Its head and throat are glossy-black, with a white patch under each eye. Its back is olive or ashy-green, and the body underneath is greenish-yellow, with a broad stripe of black down its entire length.

Not less beneficial is the long-tailed tit (*Parus caudatus* *), which is common in the south and south-western counties of England, but not so common in the north. It is about 4½ inches long, and sometimes builds a most elaborate nest, shaped like a bottle, from which this bird is known familiarly in some localities as the "bottle tom-tit;" the nest, which is built in thick bushes or dense shrubs, has a very tiny hole in the upper part of the side, and the eggs vary in number from ten to sixteen. Yarrell holds that this bird is more decidedly insectivorous even than the other species of tits. Seeböhm also remarks that its food is chiefly composed of insects, but that it also eats small seeds of various kinds, as of grasses and of the Birch. Brocchi maintains that it feeds entirely on insects in France, and that it and all the species of tits have a right to the protection of agriculturists, to whom they render important services. He estimates the annual consumption of each of these birds at nearly 200,000 insects in the form of eggs and larvae, and remarks that when they attack the buds of fruit trees, an offence with which they are sometimes charged, it is certain that there are insects within these buds.

The head, breast, and neck of the long-tailed tit are whitish, with black bands or stripes. The back is black, and the wings and the very long tail are black edged with white.

The blue tit (*Parus cæruleus*) is the most useful of all the tribe of tits, a pretty little bird, about 4½ inches in length, and babbly distributed generally throughout the country. The wings and tail of this species are blue, the breast and belly sulphur-yellow, the back yellowish-green, and the side of the head white, with a blue band running across it from the beak to the nape. Its nest of moss, hair, and feathers is built in holes in trees, walls, or gate-posts, and sometimes in pumps, letter-boxes, and other extraordinary places. Insects appear to be the principal objects of its search during the summer. Naturalists who have watched these birds, saw nothing but small grubs and caterpillars brought to the young ones from Apple-trees near. In the winter this tit feeds upon seeds, eggs, and pupæ of insects, and anything it can pick up. The hen-bird lays from eight to fourteen eggs.

In a report published by the Massachusetts Board of Agriculture upon that most destructive insect, the gypsy-moth, allusion is made to the services of titmice in Europe.

The writer of the report says:—"In Europe there are six different species of titmice. All of them are found in some of the countries where the gypsy-moth is native. They are all recognised as eminently beneficial, and are regarded by foresters, entomologists, and ornithologists as among the most useful species in controlling noxious insects. Could they be

* Some naturalists have placed this bird in a separate genus—*Acredula*; others keep it in the genus *Parus*.

successfully introduced here, they might do a vast amount of good, not only in destroying the eggs of the gipsy-moth, but their larvæ also, as well as the eggs of many injurious insects."

In a bad attack of gipsy-moth in 1848, in Germany it appears that all the trunks and branches of the trees on a certain estate were covered with the egg-clusters of these insects. It was a useless task to attempt to remove them by hand, and the trees were not expected to survive. Towards the winter, however, numbers of titmice and wrens came daily to the trees, and the egg-clusters disappeared. In the following spring twenty pairs of titmice nested in the place, with the result that the plague was noticeably reduced, and a year later the birds had cleared off the insects to such an extent that the trees had entirely recovered their former vigour.

These useful little birds, the tits, do not appear in the schedule of the Wild Birds' Protection Act of 1880. Some species, however, have been added to it in a few counties of England. The eggs of some are also protected under the Act of 1894 in a few counties. In the counties of Northumberland, York (E. Riding), Cambridge, Chester, Norfolk, East Suffolk, Devon, Essex, Kent, Isle of Wight, the eggs of all the species of tits are protected in the specified breeding areas. Both the birds themselves, as well as their eggs, deserve to be preserved. *Board of Agriculture, 4, Whitehall Place, S.W.*

CULTURAL MEMORANDA.

DIPLADENIAS.

THE merits of this handsome genus of stove-flowering plants are not now so thoroughly appreciated as they deserve to be, which may be due to the insufficient reason that they are especially subject to the attack of mealy-bug (*Coccus adonidum*).

For cutting purposes, *Dipladenia* flowers are of great value, and continue fresh for a length of time in water; whilst for training up pillars and rafters the plants are most appropriate. Many of the species also make grand specimens for exhibition purposes. When grown for the latter purpose, they should be trained upon balloon-shaped trellises at the time of potting; but as the young growths lengthen, these should be adjusted to strings stretched up the roof about 9 inches from the glass, to be taken down and dispensed evenly over the trellis a short time before the plants are required for exhibition.

During the growing season, these plants require a temperature of 75° to 85°, and a very humid atmosphere. If the cultivator has convenience for plunging them in a bed of tan or other suitable material, this will be an advantage.

Early in the month of February is the best time to repot the plants; and a compost of equal parts of peat and fibrous loam, a small portion of dried cow-manure, finely-broken charcoal, and an abundance of silver sand added will suit them well.

A point of much importance to the successful cultivation of these plants, is the provision of ample well-placed drainage materials; the pots also should be quite clean, if new all the better, providing they have been soaked in water previously, and thoroughly dried before using.

Care should be taken when removing the old soil not to disturb the roots more than necessary, pricking it out carefully with a pointed stick, until sufficient has been removed to allow of about 2 inches of new soil to be added round the sides of the ball. The collar of the plant must on no account be buried more than half an inch below the surface.

Water should be afforded with care at all times, and when the plants have finished their growth, they should be removed to a cooler and drier house, having a temperature of about 60° to 65°, and that is fully exposed to the sun's rays, so that the wood may become thoroughly ripened, and at this time water must be gradually withheld, very little being required during the winter season.

The following is a selection of six of the best varieties:—

D. Brearleyana is the most beautiful of all the *Dip-*

ladienas, the individual flowers measuring from 4 to 5 inches across, and they are of a rich pink, changing with age to crimson.

D. Williamsii produces abundant flowers in large clusters, colour soft pink, with rose-coloured throat; very distinct and beautiful.

D. profusa is a distinct, vigorous species, and one of the most floriferous, the flowers being of great substance, and 5 inches in diameter; colour, rich carmine.

D. nobilis is also very handsome, freely producing immense clusters of rosy-purple flowers, that with age change to red.

D. amabilis is one of the finest for exhibition purposes, and continues a considerable time in perfection, the colour of the flowers somewhat resembling *D. Brearleyana*.

D. boliviensis.—Unlike the others, it produces small and abundant white blossoms, the throat being of a bright orange colour. This plant is easily cultivated, and succeeds best in small pots. I have found this *Dipladenia* to be comparatively free from mealy-bug. The foliage is light green in colour, with a smooth surface. *H. T. M., Stoneleigh.*

COLONIAL NOTES.

QUEENSLAND.

AT this season of the year when there is a disposition on the part of the surplus population to think of making a move to other lands, I venture to bring before your readers some of the advantages which the colony of Queensland offers to emigrants from the old world. There has been a splendid rainfall this season throughout the colony, which will have the effect of expanding trade and industry in all departments of work, and coincident with this there is a remarkable movement in agriculture setting in.

There is still much undeveloped wealth slumbering in Australian soil. Fifty years hence, according to the *Australasian Review of Reviews*, the Darling Downs in Queensland may well be the garden of Australia. The Downs are an undulating table-land, about 2,000 feet above the sea-level, with the main line from Sydney to Brisbane running through them. They have an area of something like 4,000,000 acres of the richest agricultural soil in the world—soil ranging from 10 to 60 feet in depth, and as fertile as the Delta of Egypt or the river bottoms of Siberia.

When delegates from the Wholesale Co-operative Society were visiting the Darling Downs in 1896, it was explained to them that there were gold mines in the neighbourhood. "Ah," said they, "you have something better than gold mines here in these stretches of agricultural land which ought to be covered with dairy herds or sown to Wheat." Progress is being made in this direction, and Queensland is now a regular exporter of butter to the home market, where it stands in the front rank as regards quality.

Although there is a wide and promising field in Queensland for the unskilled labourer, and the tradesman or artisan whose ambition is bounded by the possession of a steady and well-paid job, the conditions of the colony at the present time are such as to present far stronger inducements to the tenant farmer, the small working capitalist, the man who is determined before all things to be the architect of his own fortune, the owner of his own house and land in fee simple.

A Land Act was passed last December, some of the main features of which are concerned with placing the acquisition of land upon more liberal and convenient conditions. Briefly, Government land may be taken up on the following easy terms:—

Agricultural Homesteads.—The area to be selected varies with the quality of the land, the maximum being 160, 320, and 640 acres, according to class, at 2s. 6d. per acre, payment extending over ten years; personal residence is necessary, and improvement to the extent of 10s., 5s., and 2s. 6d. per acre, according to the size of the farm, has to be effected. Labour of any kind on the land, such as building, clearing,

fencing, or breaking up of the soil, counts as an improvement.

Agricultural Farms.—Area up to 1280 acres at 10s. per acre upwards, payment extending over twenty years.

Grazing Selections.—Farms and homesteads in areas up to 20,000 on fourteen, twenty-one, and twenty-eight years' lease, at an annual rent of $\frac{1}{2}$ d. (one halfpenny) per acre upwards.

Scrub Selections.—These are divided into four classes (according to quantity of timber on land to be cleared). Area of each up to 10,000 acres, lease for 30 years. No rent for first 5, 10, 15, or 20 years, according to class; remaining periods, $\frac{1}{2}$ d. to 1d. per acre per annum.

Unconditional Selection.—Areas up to 1280 acres; the purchase of the freehold being from 13s. 4d. per acre upward, payable in twenty annual instalments.

Agricultural Lands Purchase Acts.—Large freehold estates or choice agricultural land are also being bought by the Government, surveyed into farms ranging from 40 to 640 acres in various favoured localities, for the purpose of bringing about close settlement. These lands are sold on an extended payment of 20 years, and become the freehold by payment practically of £7 19s. a year for every £100 of the purchasing price. Should the purchaser desire to secure his freehold earlier, he can do so by paying the remaining instalments of principal, together with one quarter per cent. for interest.

Steady progress is shown in the development of the resources of Queensland. The gold production advanced 25 per cent. for 1897; the total return of the gold won up to date is about £42,000,000. The productions of the colony have an extensive range, owing to its vast area and varying climate; they include the cereals and fruits of the temperate zone; sugar, coffee, and the like, from the tropical northern coast; and wool, hides, and frozen meat from the sheep and horned cattle. The climate is healthy, with a low death-rate; there is an excellent school system in the colony, without fees or religious restraint, with many promising avenues for young people, and the general community are enlightened and well to do.

I shall be happy to afford full and detailed information to all inquirers. *Chas. S. Dieken, Acting Agent-General, Queensland Government Office, Westminster Chambers, 1, Victoria Street, London, S.W.*

GATHERING FLOWERS OF NARCISSUS FOR MARKET IN SCILLY.

OUR illustration (fig. 74) of gathering *Narcissus* in one of the Scilly Islands affords an excellent idea of the profusion with which the bulbs flower in the favoured maritime climate of the islands. No wonder that the exports to the "adjoining island" can be reckoned, in the height of the season, at 20 to 30 tons per day; and, that the islanders enjoy a degree of prosperity that was unknown in the old days of the exclusive culture of early Potatoes.

HOME CORRESPONDENCE.

THEN AND NOW.—Looking through Evelyn's *Kalendarium Hortense*, or *Gardeners' Almanac* (first edition, 1664), my attention was attracted to his monthly list of "flowers in prime or yet lasting" in connection with the present early season. His list for January follows:—Winter Aconite, Anemones, Winter Cyclamen, Black Hellebore, Brumal Hyacinth, Oriental Hyacinth, Levantine Narcissus, Hepatica, Primroses, Laurustinus, Mezeron, Præcoce Tulips, &c. But he adds, "especially if raised in the hot-bed." Without this last clause, the list, which is given under the heading of "The Parterre and Flower Garden," would be perplexing, even when we allow for the old style in dating; yet with it one wonders why the list was not extended. Almost the same list is given for December, without any such explanation, though it is plain it should be understood, as Yucca, Iris Clusii, and Stock Gilliflowers are also included. Anemones appear in the lists from November to May, so it is evident that some method of forcing was practised. And on turning

to the instructions for November, we find the following:—"If the season prove exceeding piercing (which you may know by the freezing of a dish of water set for that purpose in your greenhouse), kindle some charcoals, and then put them in a hole sunk a little into the floor about the middle of it. This is the safest stove." If that was the safest way of heating, great results could not be expected. Manure-water he designates "qualified water." There are many interesting and quaint things in this Almanac. The variety of fruits in the monthly lists is greater than one would have expected, but Grapes are only named under August and September. On the other hand, Apples and Pears are enumerated under each month. Tobacco is included among the seeds to be sown in March; yet I find no further reference to its cultivation or preparation. The Narcissus of

it; especially if with this be considered likewise the casualties in planting it, as seldom succeeding more than once in three years; yet requiring constant changes and culture; besides that it is none of the least devourers of young timber." *W. Botting Hemsley.*

DRACÆNA IN THE SCILLY ISLES.—In your fine photograph of *Cordyline australis* in the *Gardeners' Chronicle*, p. 153, you leave out "Hamlet" in your short description. The photograph is very fine, and most remarkable as showing *C. australis* in flower and the rare and beautiful *C. indivisa* (vera) side by side, whereas people will persist in muddling up the two plants and the two names. *C. indivisa* at Treco flowers and fruits now and then, but I cannot rear its seeds either from Treco or from New Zealand. *F. W. B.*

for my application from what is called a business-like firm. Is this usual? *W. A. S.*

ALSTROEMERIAS AS POT PLANTS.—Perhaps the less hardy of these tuberous-rooted plants are not grown in pots to the extent that their merits deserve. But given their few requirements the result will be nice bushy plants with an abundance of flowers, the colours and markings of some of which rival those of Orchids. The roots may be obtained in the autumn, potted into suitably sized flower-pots, in a compost consisting of loam, peat, leaf-mould, and sharp sand, placing the plants in a cool frame, and protecting them from heavy rains and frost. When growth ensues, place the plants in a cool airy house, close to the glass, for, if kept in a frame at this time the shoots and thick fleshy leaves of the plants are liable



From photo by R. H. Preston, Penzance.]

FIG. 74.—GATHERING NARCISSUS BLOOMS IN SCILLY. (SEE P. 186.)

Japan or Guernsey Lily is designated "that raro flower." Directions are given for making cider and perry, but not for making wine. Indeed, the same volume contains a lengthy treatise on making cider, the work of several contributors, which was "published by express order of the Royal Society." Cider is extolled at the cost of malt liquor. The following long and curiously printed and pointed sentence explains itself. "It is little more than an age since Hopps (rather a medical than alimental vegetable) transmuted our wholesome ale into beer; which, doubtless, much altered our constitutions. That one ingredient (by some not unworthily suspected) preserving drink indeed, and so by custom made agreeable; yet repaying the pleasure with tormenting diseases, and a shorter life, may deservedly abate our fondness to

THE DAFFODIL BLOOM OF THE UNITED KINGDOM.—Will some of your readers kindly say whether quantity of the blooms is this year above or below the average. With me in Ireland, and in the Scilly Isles, as I am told, the flower crop is but one-quarter of the usual quantity. I suppose the cold spring of 1897 and so much rainfall had something to do with the poor bloom of the present year. *Telamonius Plenus.*

ANSWERS TO ADVERTISEMENTS.—An advertiser had an advertisement in the *Gardeners' Chronicle* for a man to take charge of a certain department. I answered the advertisement in a business-like way, enclosing a testimonial. After a lapse of about fourteen days, I received my testimonial partly destroyed, with not even as much as a word of thanks

to suffer from damp. In the spring return the plants to a cold pit with a cinder floor, and later plunge the pots in coal-ashes on an outside border, sheltered by a wall. After flowering and when the stems die down afford but little water, and afterwards shift them into larger pots as may be required, and grow on as before. The following varieties are sometimes grown in pots: *A. pelegriana*, *A. p. alba*, *revoluta*, *pulchella* (Simsii), *tricolor* (weak in the stem), *pallida*, and *hemantha*. *James Baxter.*

CROCUSES AND SPARROWS.—With reference to that part of Dr. Bonavia's letter relative to Crocuses, I find it is usually the earliest that the sparrows attack, which in most instances are yellow ones, but that they do not spare purple ones if they happen to be early. I further notice that the flowers in borders

which the early morning sun reaches are those attacked. I have had to protect the blooms, whether yellow or other colours; but three beds edged with yellow Crocuses which do not have any sun on them till late in the forenoon, are not touched, and they are not protected. I have also two borders facing S.E., but have a cat that is fond of sitting on a window-sill or basking under a bush, so the Crocuses there are quite safe. I protect my borders with black thread fastened on to twigs, put in the ground, and find it an effectual protection. I do not find the flowers attacked much after they are in full bloom, but that the blackbirds also share in the mischief. With reference to "R. D.'s" communication, I have a border of white, purple and striped Crocuses which stand the storms very well, but they are protected from the north. I strengthen them by adding those I have had in pots the year before, and as the colours are such a contrast to all yellow varieties, they are I think well worth growing. Any which have large cups, or grow higher than others, suffer from rain and wind—yellow as well as other colours, and those I have on a bank topple over, so I have given up putting in any more. Do not mix yellow with other colours, the first come up too early and spoil the arrangement. *Tilson Lee, Woodside, Redhill.*

ARAUCARIA IMBRICATA.—I enclose for your inspection seeds of the *Araucaria imbricata*, gathered from a tree growing in the grounds at Tillingbourne House, near Dorking. Is it not unusual for this tree to fruit in England? We have in the grounds here, at Bury Hill, several very fine specimens of the *Araucaria*, but hitherto none have shown any signs of bearing fruit. The workman who brought me these seeds assured me that the tree was not at all a large one, but no doubt it may be of some considerable age. *James Shaw, Gardener, Bury Hill Gardens, Dorking.* [The production of cones is not very uncommon, and we have notes of ripe seed from Basing Park, Hants, Drinkstone Park, Bury St. Edmunds, Tortworth Court, Gloucestershire, &c. En.]

GARDENIA CULTURE.—Your correspondent, "J. E.," in a recent issue on p. 157, states his experience of repeated failures in the cultivation of *Gardenias*, and though he did not look to me for the information he desires, it may be helpful if I relate my own experience, which for two years was similar to that of "J. E." Finding that the canker appeared on the older or two-year-old plants, I ceased to attempt to grow them, and obtained the necessary supply of flowers from young stock, which, by the way, produce much finer blooms. Before owning myself beaten, I resolved to experiment upon a few plants after they had flowered, and accordingly retained a number of the healthiest in the batch, and I may say that this particular stock was quite free from canker. Half the number were cut down to from 4 to 6 inches from the pot, while the remaining half had simply the longer shoots cut back to a uniform length; these latter were at once potted up into larger-sized pots, and the cut-back plants as soon as growth had commenced. The soil in both cases was identical, and the treatment throughout the season was precisely the same, but the cut-back plants never made much headway, and even when at their best, lacked that dark green tint indicative of health. By August, canker had again made its unwelcome appearance, and upon examining the roots they were found to be literally a confused mass of miniature "clubs," [eel worms?] The flowers on such parts of the plants as escaped injury were puny, and the colour more like an exhausted bloom than one freshly opened. The plants that were less severely pruned gave an excellent return in quantity of bloom, but the size of each was less than that of blooms from the yearling stock; and as the structure which I had decided to devote to *Gardenias* was unsuitable for any but dwarf plants, I have since only grown stock to give me one crop, and afterwards propagate afresh. Occasionally we retain a few when our batch of young stock is limited, and in no case have I found any signs of canker when they have not been severely cut-back. Our treatment, I believe, is not exceptional, but a brief account of same may not be uninteresting to "J. E." and to other readers of the *Gardeners' Chronicle*. Cuttings are put in as early in January as strong shoots can be obtained. Three-inch pots are used, and the cuttings are placed round the sides. The compost is of silver-sand and peat in equal parts; the latter having been passed through a fine sieve makes a suitable rooting medium. A close case, having the advantage of a smart bottom-heat, is very

convenient, as it greatly facilitates the rooting process. As soon as each cutting is furnished with a few roots they are potted singly into thumb-pots, using two parts peat in slightly rougher form, and one of leaf-soil, also some sand and broken charcoal. We use clean pots and afford ample drainage. The plants are again placed into the propagating-case, and they remain there until the roots penetrate the fresh soil, when they are taken out and stood near the glass in the propagating-house. In about a month from the time of potting, the points of the shoots are removed to induce the formation of suckers, and a number of side branches. When the plants have recovered from this check, they are placed into 5-inch pots; the soil which is used on this occasion being somewhat similar to that previously stated, except that a small addition of fibrous loam is made, and a sprinkle of Thomson's Vine and Plant Manure. Firm potting is practised, and the plants are again pinched twice during the growing season, once in May, and again in July. The back of a hip-span-house in the front of which *Crotons* for table service are grown, is the site where the *Gardenias* are grown, and the structure is scarcely ever ventilated, but when the sun becomes too powerful, a very thin shading is pulled down over the *Gardenias*, and the plants and all surfaces are well syringed. In summer-time, we not infrequently run the blind up and syringe overhead with the glass standing at 115° at 2 P.M. The temperature is lowered considerably in October, and all growths being completed less water is given, and a season of comparative rest afforded. During this period buds are formed, and as we have had to supply flowers during March and April, the plants have not been hurried into growth by affording a higher temperature before February. The average number of blooms to a pot when the plant has been well grown, has been two dozen. After the pots were fairly charged with roots, we have given Clay's Fertiliser and Ichthemic Guano alternately, and these are the best stimulants for *Gardenias* I have yet tried. *J. F. McLeod, Rochampton.*

HARDY PLANTS FOR FURNISHING FLOWERS FOR CUTTING.—In reply to Mr. E. Jenkins' remarks on p. 173, I admit I should have been more explicit in my statements respecting *Alstroemerias* out-of-doors. I ought to have stated in my note (p. 156), that pot-plants should be obtained wherewith to make fresh plantations instead of divided roots, for the reasons given by your correspondent. Even for early autumn planting, plants established in pots are preferable. A simple method of raising a stock of the *Alstroemerias* named in my list is to sow seeds in drills, 3 inches deep and 18 inches apart, placing the seeds in patches of three or four 1 foot apart. If seed be sown this month or early in April, the seedlings should begin to bloom about fifteen months afterwards, and they will increase in strength and floriferousness year by year, providing they are not injured by frost, and that a mulch of leaf-soil or half-rotted manure be laid on late in the autumn will prevent. The spent-flowers should be cut off in order to prevent seed-bearing, the stems not being shortened, or the leaves removed, but all of these allowed to die down, they being naturally necessary to the proper ripening of the tubers, and the formation of new crowns. My authority for stating that large quantities of *Alstroemerias* are grown for supplying wholesale florists in Covent Garden is Mr. T. S. Ware, of Tottenham, a high authority on the subject of choice hardy perennials, who says, "some are grown in large quantities for supplying Covent Garden;" adding, "that although natives of Chili, they are quite hardy, and thrive well in our climate." Another good authority on choice hardy perennial flowers—Mr. H. J. Elwes—writing of the genus *Alstroemeria* in the *English Flower Garden*, on p. 10, says:—"Anyone having deep light sandy soil resting on a dry bottom, may grow these beautiful flowering-plants without any artificial preparation; all that is necessary in that case being to pick out a well-sheltered spot, but to give the surface a slight mulching on the approach of severe weather;" adding—"No trouble is involved in etaking and tying, as with most plants, for the stems of these are quite strong enough to support themselves, unless in very exposed situations. Independently of the handsome bloom which they make when growing, they are quite worth cultivating for supplying cut flowers, and they last long when cut." Thus it would appear that, apart from my own experience of the *Alstroemeria*, that I am justified in including *Alstroemerias* in my list. When I wrote in the *Gardeners' Chronicle* of March 12, p. 186, "Large quantities of *Alstroeme-*

rias are grown for Covent Garden," I purposely refrained from mentioning varieties in connection therewith, not being sure whether a sufficient number of plants of, for instance, *A. pelegria alba*, for growing in quantity was available in the time that has elapsed since the plant was accorded a First-class Certificate at a recent Temple Show, and so did not specify the varieties in case I might be doing an injustice to *A. pelegria alba* by excluding it from the list. Under these circumstances I regret being unable to give Mr. Jenkins the name of a place in England in which *A. pelegria alba* grows in the open air in quantity for market purposes. Perhaps some readers of the *Gard. Chron.* may be able to mention the name of a place where the plant succeeds in the open, not necessarily in quantity, or for market purposes. My own opinion is, that once this plant gets well-established in a lightish kind of soil, and a somewhat shady position, it will flower as freely as *A. aurantiaca*, *A. pelegria* and other free-growing varieties. With the editor's permission, I shall have something further to say in regard to English and Spanish Irises, and double-flowered Daffodils, also included in my earlier communication on "Market Plants." *H. W. Ward, Rayleigh.*

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 22.—An excellent display was made in the Drill Hall on Tuesday, on the occasion of an ordinary meeting of the committees, and the attendance throughout the day was large. The greater number of the exhibits were such as are dealt with by the Floral Committee, and included fine displays of *Hippeastrums*, *Cinerarias*, *Cyclamens*, *Roses*, *Hyacinths*, *Clivias*, *Ferns*, and a few hardy plants. One of the chief characteristics of the display consisted in the uncommonly good cultivation evidenced in some of the large exhibits. The Narcissus Committee was presented with several large collections of flowers, the warmer weather prevalent since the last meeting having brought these flowers on considerably. Very little indeed was placed before the Fruit Committee, but it was not so in the case of the Orchid Committee, which was asked to inspect some exceedingly choice *Odontoglossums* and other species. The weather, in the morning particularly, was not at all favourable, and a rather thick fog prevailed, so that sufficient light to perfectly show the tints of colour in the flowers was unable to penetrate the Drill Hall. A lecture was delivered during the afternoon by Mr. J. Willis on "Soils," a digest of which will be found below.

Floral Committee.

Present: W. Marshall, Esq., chairman, and Messrs. C. T. Drury, H. B. May, R. Dean, Ed. Molyneux, Geo. Stevens, J. F. McLeod, R. B. Lowe, J. Jennings, C. J. Salter, H. Selfe-Leonard, J. Fraser, J. D. Pawle, Chas. E. Shea, Chas. E. Pearson, F. W. Sanders, E. F. Cook, E. Beckett, Herbert J. Cutbush, O. Thomas, Ed. Mawley, J. W. Barr, H. J. Jones, Harry Turner, Geo. Paul, W. Howe, Jas. Hudson, D. B. Crane, Geo. Gordon, Chas. Jefferies, and Jas. Walker.

The attendance upon this committee was exceptionally large; as will be seen from the above names, there were thirty-one members present.

An Award of Merit was recommended to *Hyacinth*, City of Haarlem, flowers single, large, and pale yellow in colour, spike bold, and densely flowered. This, and a large group of *Hyacinths* in pots, were shown by Messrs. W. PAUL & SON, Waltham Cross Nurseries, Herts, in whose collection there were over 200 pots. The plants exhibited excellent cultivation and great variety, being one of the finest exhibits of *Hyacinths* we have observed for some years past (Silver gilt Medal).

An Award of Merit was recommended to *Cordylone Exquisita*, a very beautiful variety in the way of *Cooperi*, but with more recurring foliage and slightly broader. It was shown by Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, Chelsea, who had half a dozen plants. Messrs. VEITCH were recommended Awards of Merit also for *Hippeastrums* *Ideala*, *Clonia*, and *Taola*, each of these varieties had very prettily marked flowers, the lightest coloured and most delicate looking being *Clonia*, but a slight edging of very bright scarlet to each segment was very effective. *Rhododendron indicum* var. *Kempferi*, a Japanese species, exhibited from Chelsea, also had rose-coloured flowers of *Azalea* form.

J. VEITCH & SONS, showed a large number of *Clivia* *miniata* in much variety, for which a Silver Flora Medal was awarded. Every truss was remarkable for its large size, and each showed some differences in build, in the number of the flowers in a corymb, and in shades of colour, no two being exactly alike. Some were seedlings not yet rejoicing in a name. Of named ones we may mention *Optima*, a very large flower and truss, receiving an Award of Merit; *Admiration*, extra fine in colour, size of truss, and form of flower; *Niobe* and *Favourite*, of a pale orange hue. At the rear of the group stood five pyramidal

plants of *Pyrus atrosanguinea*, with flowers of an apple-pink shade when expanded, and of bright carmine in the bud. This firm showed small plants of *Corylopsis pauciflora* in bloom; also several of *Clematis Nelly Moser*, having flat flowers of a bluish colour, with a rosy-red band running down the centre of each petal. *Lindera sericea*, a woody shrub, with axillary bunches of greenish inconspicuous flowers, and *Shortia galacifolia* formed part of this exhibit.

Messrs. J. JAMES & SON, Woodside, Farnham Royal, again displayed their celebrated strain of *Cinerarias*, in a group of plants of very dwarf habit, with comparatively small foliage, and flowers about 4 inches across—smaller, of course, in the cases of dark self-coloured varieties. The colours were not less remarkable than the size of the blooms and the habit of the plants, for whether self-coloured or bicoloured, all the flowers exhibited superlative quality, and richness of tint. The bicoloured or ocellate flowers greatly increased the brightness of the group, but the self-coloured ones are quite as attractive, by reason of their richness, and these as well as the bicoloured flowers are beautifully imbricated (Silver-gilt Medal).

Mr. JNO. R. BOX, West Wickham and Croydon, also exhibited a group of *Cinerarias*, very commendable in habit, and in the brilliant colouring of the flowers.

An Award of Merit was recommended to an *Azalea obtusa*, shown by W. NICHOLSON, Esq., Basing Park, Alton (gr., Mr. W. Smythe). This is a small-flowered, magenta-coloured *Azalea*, reminding one of a larger flowered *A. amena*.

Mr. MOUNT'S Roses were more magnificent than ever, H.P.'s, as well as T.'s and H.T.'s, being of extraordinary quality for forced flowers. Catherine Mermet, a favourite at the Canterbury Nurseries, was again conspicuous, one bloom in particular being of uncommon size, but a trifle pale in colour. La France, Comtesse de Nadaillac, amongst the Teas, were noted. Of the H.P.'s, the fine variety, Mrs. John Laing, was exhibited in greatest quantity; but Ulrich Brunner, Captain Hayward, and many others, were represented by exquisite blooms (Silver-gilt Medal).

Mr. W. RUMSEY, Joyning's Nursery, Waltham Cross, made a large display also with Roses, showing about a couple of hundred blooms. The majority of these were Teas, and Maréchal Niel, Niphetos, The Queen, Souvenir d'Un Ami, and others were noticed very fine. Of H.P.'s the new Mrs. Rumsey was shown well, and Comte Raimbaud, Chas. Lefebvre, Baron de Bonstetten, and others (Silver Flora Medal).

Messrs. WM. PAUL & SONS, Waltham Cross Nurseries, Herts, exhibited three pretty groups of Roses in pots. Two of these were composed exclusively of the variety Enchantress, a pretty pale flesh-coloured Tea. The third group contained such varieties as Sylph, Madame Jules Groley, a pretty rose; coloured H.T.; Souvenir du Président Carnot, also a H.T. of much merit; and others.

Messrs. W. CUTHBERT & SON, Highgate, London, contributed a group of miscellaneous plants, inclusive of *Thyracanthus utilans*, a number of dwarf plants of Malmaison Carnations, *Richardia Elliottiana*, *Acacia Drummondii*, &c.

Cyclamens exhibited by the ST. GEORGE'S NURSERY CO., Hanwell, W., were of splendid quality. Their group included about ten dozen plants rather larger and older plants, and carrying a far greater number of flowers than those shown at the last meeting. A white-flowered variety, with beautiful imbrication, and the normal *Cyclamen* form is very pretty (silver-gilt Medal).

Hippeastrums were again shown by Captain HOLFORD, Westonbirt, Tetbury, Glos. (gr., Mr. A. Chapman), who staged upon this occasion a group inclusive of many more plants than at last meeting. These seedling varieties in many instances were of great merit. An Award of Merit was recommended by the Committee to one named Beacon, a self-coloured crimson variety of much substance (Silver-gilt Medal). Captain HOLFORD also showed a few plants of *Sonchus laciniatus*.

Messrs. R. & G. CUTHBERT, Southgate Nurseries, Middlesex, contributed a fine group of Tulips in pots, a most creditable collection of well cultivated plants. The varieties of Tulips have changed so little of late years that it is unnecessary to specify those shown, though they were very representative.

Messrs. B. S. WILLIAMS & SON, alongside a group of Orchids, noticed elsewhere, staged a dozen or so plants of *Azalea mollis*, also of *Staphylea colchica*, *Hippeastrums*, and a few *Cliveas*. Their *Clivia Oriflamme* was very fine.

Mr. CHARLES BELLIS, Downton Hall Gardens, Ludlow, exhibited four *Cordylines*, named respectively Charles Bellis, Ludloviensis, Salopian, and Downtoniana, all the narrow-leaved section, some lighter, some darker coloured.

Col. HALFORD THOMPSON, Teignmouth, exhibited a Palm and a Marguerite in glass pots, to show how well the plants rooted in Jadeo-fibre.

Mr. ROBT. SYDENHAM, Tenby Street, Birmingham, exhibited a little wire-clip for securing Carnations or other flower-spikes to stakes in place of tying them with bast. Rounded stakes and a few other sundries were displayed also.

Mr. J. WATTS, Hamilton House, Newmarket (gr., Mr. J. Heath), exhibited thirty plants of a Wallflower named Jno. Watts, the foliage being variegated with yellow.

Messrs. PAUL & SON, The Old Nurseries, Chesshurst, showed a few hardy plants in flower, including *Primula obconica rosea*, *P. purpurea plena*, *P. sulphurea plena* (double white and double purple *Primroses*), and *P. denticulata*; also several *Saxifraga*, *Anemone Pulsatilla*, *Hepatica triloba*, *Valeriana Phn aurea*, *Androsace carnea*, and a fine lot of *Megasea Stracheyi*.

Messrs. J. LAING & SONS, Forest Hill and Catford, exhibited a large miscellaneous table of plants in pots, chiefly stove

and intermediate-house subjects and plants forced into flower. Noticeable for variety or good culture, were *Latania aurea*, the leaves of a yellowish-green colour, *Dracena Sanderiana*, *D. Goldiana*, *Caladium* in variety, the last named handsome decorative plants, with good leaf development for so early a part of the season. *Clivia miniata* in named and unnamed varieties provided generally with fine corymbs; small furnishing examples of *Azalea mollis* and *Codieums*.

Their varieties of *Streptocarpus*, with large well-shaped blossoms of various shades of purple, also white with purple stripes in the throat, was likewise shown. The adjectival name *multiflora* was attached to this strain. Some plants of the somewhat rare *Leea amabilis* with capitally coloured leaves, were exhibited under a bell-glass. Other plants calling for remark, were *Richardia Elliottiana*, *Boronia elata* and *B. megastigma*, *Azalea dianthiflora* and *Rhopala species*. An award of a Silver Banksian Medal was made for the group.

Messrs. LAING made a display of florist arrangements which very prettily terminated on one of the central tables. A simple shower-bouquet of *Narcissus* blooms was very pretty, and a sharp composed of choice Roses and other flowers, though formal in design would appeal to many tastes. Nice little button-holes were included also, and a well-flowered plant of *Coleogyne cristata*.

Messrs. J. HILL & SON, The Nurseries, Lower Edmonton, exhibited a pretty bank of exotic Ferns, including the following notable species and varieties:—*Asplenium Colensoi*, *Gymnogramma Parsonsii*, a silver-farinose species of a neat dense habit; *Pteris nemoralis*, with semi-erect fronds, the younger ones of a reddish-green tint; *Davallia tenuifolia stricta*; *Pteris Victoriae*; *Nephrolepis davalloides furcans*, a distinct tufted variety; *N. cordata compacta*; *Lastrea erythrosora*, the young fronds of which are of a bronzy colour; *Blechnum brasiliense*, distinct-looking; *Pteris tremula Smithiana*, a frizzled and tasselled species, of dwarf habit, the fronds of a deep green colour. A basketful of *Adiantum scutum* showed up excellently the coppery tint of the young fronds; *Lastrea lepida*, as a lot of healthy young plants, a beautiful plant; and *Pteris arguta* formed a pretty object. The bank was backed with Ferns of large size in variety, so as to mask the wall. The exhibitor was awarded a Silver Banksian Medal.

Mr. H. B. MAY, Nurseries, Upper Edmonton, showed pretty examples of *Lomaria ciliata major*, 2½ feet in height of its crown of tough fronds, forming a very decorative object. The few small plants of the species surrounding the large plant were even prettier, the fronds differing much in appearance from those of the older plant.

Mr. MAY exhibited a group of eight varieties of *Clematis*, viz., Fair Rosamond, Miss Bateman, Sir Garnet Wolseley, Lady Londesborough and Lord Londesborough, Miss Quilter, and a few other well-known varieties.

Narcissus Committee.

Present: Messrs. J. T. Bennett-Poë (chairman), C. R. Serace Dickens, J. de Graaff, Jas. Walker, A. Kingsmill, Miss Willmott, Rev. G. H. Engleheart, Rev. S. E. Bourne, and others.

The frosts and drought of March have considerably checked the growth of the *Narcissus*, which was unduly advanced in February, so that a large proportion of the flowers shown were from under glass. Two trade exhibits only were staged, by Messrs. BARR & SONS and T. S. WARE. The former was awarded a Silver Banksian Medal for a comprehensive group of well grown and finished flowers, consisting chiefly of trumpet varieties. Among these, the novelties Weardale Perfection, Madame Plomp, Madame de Graaff, and Victoria, were noticeable, the last named especially being very fine (Silver Banksian Medal).

Mr. T. S. WARE received a Bronze Banksian Medal for a large bank of *Narcissi* in pots, flanked with alpines, &c. (Bronze Banksian Medal).

The Rev. G. H. ENGLEHEART showed several varieties of seedling white and pale trumpets; and Mr. JAS. WALKER, and Mrs. LAWRENSEN also sent seedlings.

Orchid Committee.

Present: Harry J. Veitch, Esq., in the Chair; and Messrs. J. O'Brien (Hon. Sec.), De B. Crawshaw, H. Ballantine, J. T. Gabriel, H. J. Chapman, F. J. Thorne, W. H. Young, W. H. White, T. W. Bond, G. W. Law-Schofield, E. Ashworth, W. H. Protheroe, S. Courtland, H. M. Pollett, E. Hill, and N. C. Cookson.

The display of Orchids was not so extensive as usual at this part of the season, but there were some very remarkable exhibits staged, and as a whole it was very good. Especially noticeable was *Dendrobium nobile* Ashworthianum with pure white flowers, shown by E. ASHWORTH, Esq., of Harefield Hall, Wilmslow (gr., Mr. Holbrook). Notwithstanding the fact that *D. nobile* was introduced about sixty years ago, and importations have arrived from different localities, this is the first quite white form which has appeared at the meetings or shows of the Royal Horticultural Society. The flowers were of fine form and white, with the exception of a slight greenish-yellow tinge at the base of the lip (First-class Certificate). The exhibitor showed *Odontoglossum hybridum* Ashworthianum, which was thought to be cross between the rose-coloured *O. Cervantesii* lilacinum and *O. cordatum*. It has flowers similar in form to those of *O. asperum*; the sepals yellowish, heavily barred with brown; the petals rose-coloured, with two or three red-brown marks at the base; and the lip coloured rose (Award of Merit).

Baron Sir H. SCHRODER, The Dell, Egham (gr., Mr. H.

Ballantyne), showed the beautiful *Odontoglossum crispum* "Princess Christian," a very large flower possessing a clear white ground handsomely blotched with irregular brown spots; the lip and crest, which were peculiar, suggested hybrid origin, as do many of the blotched *Odontoglossums* known as "crispum" (First-class Certificate).

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Aldons), showed again the fine *Odontoglossum* × *excellens*, Rosslyn var., for which a First-class Certificate was previously awarded. The flowers were better than when the plant was last shown. It is one of the best varieties of *O. excellens*. The flowers measured 3 inches across, of a thick and firm substance; of a clear yellow-ground colour, blotched with chestnut-brown. The limbs of the flower were nearly equal, and of about 1 inch in width (Cultural Commendation).

Mr. THOMAS ROCHFORD, Turnford Hall Nurseries, Broxbourne, showed as *Odontoglossum* × *Rochfordianum*, a very remarkable natural hybrid, with richly-spotted flowers of middle size, approaching closely in appearance to those of *O. crispum leopardinum*. The flowers were creamy-white, spotted with a rich shade of crimson. The fringed lip suggested *O. Hunnewellianum* as being one of the parents (Award of Merit). Mr. Rochford also showed *Dendrobium nobile albidiflorum*, with flowers larger than usually obtain.

From MME. JOA BRANDT, Riesbach, Zurich (gr., Mr. Schlecht), came *Oncidium Phalaenopsis Brandtiae*, a very fine form of the plant often seen in gardens as *O. cucullatum Phalaenopsis*. The flowers were 2 inches in length, the lip being more than 1 inch wide where broadest. The sepals are white, heavily blotched with claret-purple; the lip is white, with a deep yellow-coloured crest, and bright purple markings at the base (Award of Merit).

MME. BRANDT also sent the singular-looking *Oncidium ansiferum*, and *Odontoglossum Hunnewellianum*.

Sir TREVOR LAWRENCE, Bart., Burford, Dorking (gr., Mr. W. H. White), showed three well-bloomed plants of the pretty *Epidendrum Endresii*, with white and violet flowers; the rare *Sarcophilus Hartmanni*, a finely-flowered specimen of *Masdevallia* × *Pourbaixii*, *M. Veitchiana grandiflora*; and the remarkable *Epidendrum varicosum*.

Messrs. HUGH LOW & CO., Clapton, were awarded a Silver Banksian Medal for a very effective group made up of remarkably fine specimens of *Cattleya Trianaei*, C. Mendel, *Dendrobium Boxalli*, and other *Dendrobiums*; the handsome *Cymbidium* × *eburneum* - *Lowianum* var. *marmoratum*, with large flowers of a cream-white hue marbled with rose; the rare *Phalaenopsis intermedia* Portet, varieties of *Odontoglossum crispum*, *O. triumphans*, *O. Andersonianum*, *O. mulus*, *Lelia cinnabarina*, &c.

J. T. GABRIEL, Esq., Palace Road, Streatham Hill (gr., Mr. E. Ranson), showed *Cattleya Trianaei* Gabriel's var., with very large flowers, the sepals and petals of which were bluish-white, the lip bearing a bright crimson blotch with light margin.

J. B. BROOKES, Esq., Finetall Park, Bromsgrove (gr., Mr. J. Drew), showed *Odontoglossum crispum roseum*, a flower of good form and substance. Dr. F. HILLS, The Elms, Campbell Road, Croydon, showed *Odontoglossum coronarium minutum*, Hills' variety.

Messrs. B. S. WILLIAMS & SON, Victoria and Paradise Nurseries, Upper Holloway, staged a good group, in which were several well-bloomed *Coleogyne cristata alba*, *Calanthe Williamsii*, *Zygopetalum* × *Perrenoudii*, *Odontoglossum crispum roseum*, and *O. e. flavellum*, the handsome *Phaius* × *Norman*, *Cypripedium* × *Harrisianum superbum*, C. × *Io superbum*, C. × *Lathamianum*, &c. (Vote of Thanks).

Mrs. LAURA C. JOAO, Patching, Worthing (gr., Mr. Standing), showed *Cymbidium* × *eburneum* - *Lowianum*, and a very fine three-flowered inflorescence of *C. eburneum*.

Fruit Committee.

Present: Geo. Bunyard, Esq., in the chair; and Messrs. H. Balderson, T. F. Rivers, A. F. Barron, W. Bates, J. Cheal, A. Dean, Robt. Fyfe, W. Gleeson, C. Herrin, J. Laing, F. Q. Lane, G. Norman, W. Pope, W. Poupard, G. Reynolds, J. H. Veitch, H. W. Ward, Jesse Willard, J. Wright, and Geo. Wythes.

APPLE AND PEAR COMPETITION.

Apples, dessert.—Mr. Tallack, gr., Livermere Park, Bury St. Edmunds, was 1st with Lamb Abbey Pearmain, the fruits being a clear and nice-looking sample of this small-fruited variety; 2nd, Mr. C. Herrin, gr., Dropmore, with Sturmer Pippin. Other varieties shown were White Nonpareil, Muntington Pearmain, Scarlet Nonpareil, Court Pendu Plat and Dutch Mignon.

Pears, dessert.—A dish of Ne Plus Meuris was shown by Capt. CARSTAIRS, Welford Park, Berks (gr., Mr. C. Ross), obtaining a 2nd prize. Other varieties shown were Beurre Bretonneau, Bergamotte d'Esperen, and a variety without a name.

Mr. O. Wythes, gr. to EARL PERCY, Ston House, Brentford, showed six half-pound pincts of Laxton's Royal Sovereign Strawberry, receiving a Cultural Commendation.

Horticultural Soils.

THE following is an extract of the lecture given by Mr. WILLIS "On Soils," on Tuesday, at the Drill Hall.

The Lecturer, in his opening remarks, said that the value of different soils for horticultural purposes is greatly dependent upon the original material from which they were made, and upon the state of fineness to which they have been reduced.

The soil must allow of the free percolation of both water and air, which are so necessary to the life and

growth of the plant, and to the due preparation of plant-food in the soil. It must retain sufficient moisture to furnish the growing crop with an immediate supply of water, and its pores must be sufficiently fine to allow of the ascent of water from the subsoil by capillary attraction. It must store up some of the heat received from the sun in the day time, and so render the temperatures of the soil more equable. It also serves as a protective covering to roots and seeds against excessive summer heat and winter frosts. A soil should contain in itself a stock of the mineral food necessary to the growth of crops, and it must constitute the laboratory of a number of wonderful actions whereby plant-food is always being prepared little by little for reception and assimilation into the plant.

Speaking of the soil as a source of plant-food, the lecturer said, where any plant, however lovely, has once grown and died away, its remains gradually decay and add a little vegetable or organic matter to the soil, rendering it thereby capable of growing a better plant the next season. As the soil becomes richer in carbonaceous and vegetable matters, higher organised plants will occupy it; these pass through the same phases of life as the plants of simpler structure, and enrich the soil at an increasing rate. It happens, therefore, that the virgin soils, as they are termed, derived from the heath, the forest, or the prairie, which are first ploughed up by the settlers in new countries, are richly charged with a blackish-brown vegetable substance, known under the general name of humus, and recognised as one of the marks of a fertile soil; in fact humus was considered by agricultural chemists in the early part of the present century to be the main source of soil fertility.

A soil rich in organic matter or humus, is rich in nitrogen; while a soil poor in organic substance is poor also in nitrogenous plant-food; and the permanent fertility of a soil is found to be very closely connected with its power of retaining plant-food. The composition of various soils was shown by means of diagrams, and the investigations pointed to the fact that the very rich peat-moulds, leaf-moulds, and turf-moulds, &c., which are so greatly valued for horticultural purposes, generally contain an excessive amount of fibrous-rooted material, or of leafy organic matter, with a correspondingly large amount of nitrogen. It is these constituents which by their abundance produce the greatest fertility.

A section was devoted to Jadoo fibre, which although not a soil, has been recommended to take the place of mould in certain gardening practices. It was shown to consist of peat moss, to which soot, bone meal, and gypsum, with a small quantity of phosphoric acid and potash, has been added; and the whole essence of the success of this material for plant-culture lies in the amalgamation of the various plant-food ingredients.

As soil fertility is of so much importance to the horticulturist in the productiveness of the garden, and as the final returns may be expected to be directly proportionate to the amount of nitrates which it contains, and to the facilities or favourable conditions offered for the conversion of organic nitrogen into ammonia and nitrates, the subject of nitrification in the soil becomes one of intense interest, and was dealt with pretty fully by the lecturer.

Recent investigations have shown that the nitrifying microbes are in greater or less number in all fertile soils, but are most active in soils under cultivation, teaching the advantage of the frequent use of the hand-hoe and other implements of tillage in the open garden, and of a friable porous soil for potting purposes. The nitrification of a cultivated soil which takes place in the spring is, as a rule, quite insufficient to meet the food requirements of early-sown spring vegetables, hence the advisability of using some stimulating manure, such as nitrate of soda, guano, sulphate ammonia, or soot, if rapid production is required.

The next question considered was that of available plant-food. A large part of the elements of plant-food contained in soils is present in such a condition that plants are unable to make use of it. It is not the total proportion of phosphoric acid, or of potash, or of nitrogen, that rules a soil's fertility for horticultural purposes, but the amount of each of them that is present in an immediately available condition.

How plants are dependent upon the food supply in the soil was shown by the fact that one horticultural soil may have a proper texture, with a suitable amount of moisture, and in fact a full supply of everything the plant needs except phosphoric acid. If so, it cannot yield a full crop. Add phosphate in an available form, and the growing plants will be benefited. Another soil may be deficient in potash, another in lime, another in nitrogen; still another in two or three of these substances.

This same variation may run through inherent fertility of the soil, and in the solubility of its constituents. Therefore, a horticultural soil may be deficient in available mineral ingredients, or in available nitrogen. Or it may be so compact, that air and moisture cannot get into it to work over the crude material it contains, nor the plant roots make their way through to obtain the food that has been made soluble. Again, it may be so loose and non-retentive, that the food constituents will escape by drainage. Or, on the other hand, it may be so dry that fertilisers will be useless, and plants wither for lack of moisture, or so wet and cold as to prevent plant-growth. In these several cases, proper tillage operations were recommended to assist in amending the soil texture, so that its power of holding water might be improved, and its supply of available plant-food increased. Then by a suitable manurial treatment it may be brought into condition to yield bountiful returns for all that is done to it.

In conclusion, a few practical remarks were made upon the

three main constituents of plant-food in horticultural soils, namely, nitrogen, potash and phosphoric acid.

With regard to nitrogen, it was shown that, although the nitrification in rich garden soils, leaf-moulds, and peat-moulds may be sufficiently active for the gardener to dispense with artificial nitrogenous manures in most cases, yet there are certain species of plants which rapidly develop a large mass of foliage, and these cause a rapid and extensive demand upon the available nitrogen of the soil. For such plants it will always be advisable to use nitrate of soda, sulphate ammonia, guano, soot, or similar materials as manure.

Phosphoric acid occurs in very small actual assimilable quantities in most soils, however rich. It is, therefore, necessary to add this ingredient by a manurial application if full crops are to be obtained. The best form in which this substance may be added to horticultural soils, is by bone phosphate, bone meal, or basic slag. Superphosphate of lime yields a certain proportion of phosphoric acid soluble in water. But in rich moulds cheap mineral superphosphates are not recommended, as the introduction of free sulphuric acid into soils poor in lime would be hurtful to plants.

Potash is a constituent in all rich horticultural soils; this becomes only slowly available for vegetation. For certain cultures, more especially that of Ferns, Palms, Vines, Potatoes, Roses, &c., potash manures have a very beneficial effect when applied to leaf-mould composts. The most rational mode of application is to use carbonate of potash, one of the chief ingredients in wood ashes, or kainit. This salt is retained by the soil, and plants are able to absorb it as they need. The proportions to be used must vary, according to the requirements of the plants cultivated.

NATIONAL CHRYSANTHEMUM.

ADJOURNED ANNUAL MEETING.

MARCH 22.—THE adjourned annual general meeting of the members of this Society took place on Monday evening last at Anderton's Hotel, Fleet Street, E.C. There was a large attendance of members, and in point of duration, as in some other respects, the meeting may be described as an extraordinary one. It was called for six in the evening, and the chair was taken by Mr. T. W. SANDERS about fifteen minutes later, but it was twenty minutes past eleven before the meeting separated. As a committee meeting had been held from five to six o'clock, the chairman and a few others had sat uninterruptedly for upwards of six hours.

When the Secretary had read the revised balance-sheet (showing that outstanding accounts had been paid by the withdrawal of £50 from the reserve fund), its adoption was formally moved from the chair, and duly seconded by Mr. B. BECKETT. A rather long discussion was then commenced by Mr. CHOLMELEY, who pointed out a slight error which had been made (but which was subsequently explained satisfactorily), and asked why there were not the signatures of the auditors upon the revised sheet.

Mr. Pearce referred to the sum of £12 9s. 8d. for bill posting as appearing in both receipts and expenditure. When the questioner had been satisfied on this point, the Chairman read a letter he had received from the auditors, in which they declined to have anything to do with the revised balance-sheet. This was followed by a statement from Mr. H. J. CUTHBERT, one of the auditors, who said that the accounts as first presented were thoroughly examined, and the vouchers inspected; and Mr. Stubbs also said that the first report was an intelligible one, and it would be unwise and incorrect on their part to go further.

The Secretary then made a statement to the effect that the Society had always had to carry over a large sum of money from year to year, and since he had been Secretary he had honestly tried to reduce the amount. Mr. Dean then traversed a statement made by Mr. Gordon at the last meeting respecting the show expenses having greatly increased, declaring that such was not correct, but that the expenses were tabulated differently in the financial statement than they were formerly.

Mr. Moorman severely criticised the Society's financial policy at length, and declared that the printing was expensive and the purchase of medals also. The practice of letting the floor space in the Aquarium to vendors of "Sticks and Manures," and the consequent banishment of the Chrysanthemum blooms to the galleries, was a strong point in Mr. Moorman's criticism.

Mr. Spier asked if the amended accounts had been sent out with the Treasurer's assent? Mr. Starling, Treasurer, replied that for years he did not know that there were unpaid accounts carried from year to year. When the Secretary informed him that such was the case, he refused any longer to affirm that the balance-sheet was a true one. Before resigning, he had determined, in the interests of the Society and of his successor, to acquaint every member with the present system by which the accounts were practically under the control of the Secretary alone. They had been obliged to take about £50 from the reserve fund to pay outstanding accounts, but instead of this the Society ought to obtain and preserve a reserve fund of at least £300 to £400.

Several questions were then put with a view to obtaining from the treasurer or auditors, an assurance that the revised balance-sheet was correct, and more than one member rebuked the auditors for failure of duty, it being affirmed that when they signed the first statement it was in their knowledge that debts were still outstanding. "Who is responsible for the revised balance-sheet," said one member. "Nobody has signed it, no one attaches importance to it, no

one owns it. Who is its father?" At length the treasurer accepted the responsibility, and said that Mr. Dean told him that up to the date the accounts were closed there was not one penny now owing, and he believed Mr. Dean.

Mr. H. Cannell remarked that they had paid the debts, they had clean hands, but a reserve fund reduced by one-half. They had been too lavish; it was now for the meeting to accept the position, and make up their minds for business in the future.

The balance-sheet was adopted almost unanimously. On the consideration of the report, Mr. Moorman proposed that it be held over until the meeting had heard the estimates of receipts and expenditure for 1898. The Secretary then read an estimate that had been made, which showed a balance against receipts of £48 10s. 8d., but the committee's alterations to same had resulted in an estimated balance in favour of receipts of £22 8s. The revised estimate was accepted.

Resuming the consideration of the committee's report, Mr. Moorman proposed that in the first paragraph the words, "its resources are as great as ever, its supporters more numerous, it is financially sound, and its prestige knows no diminution," should be deleted; but eventually the motion was lost on the ground that it might be accepted as the opinion of the committee. The motion from the chair that the report, with the exception of certain modifications proposed by the committee, be received, printed, and circulated, was passed. Votes of thanks to the auditors, president, and others having been passed, the meeting turned its attention to the election of officers. The president (Sir EDWIN SAUNDERS) was re-elected with acclamation.

The resignation of the treasurer having been received, it was decided to confer the honorary fellowship of the Society upon Mr. Starling, and to ask his acceptance of the Society's small Gold Medal, and a letter inscribed upon vellum testifying to the fidelity with which he had worked for the Society for upwards of twenty years, and further that it was the result of his labour, extending over some years, that the first reserve fund was formed. Mr. Starling suitably replied, and declared that his one desire was that his successor might be what he himself had never been, "a treasurer in effect as well as in name."

Messrs. R. Ballantyne and Geo. Gordon were then nominated for the vacant office, and this, and all cases where there were more than one member proposed for an office, was decided later in the evening by ballot. After vainly trying to escape the position of chairman of committee, the present chairman (Mr. T. W. Sanders) was prevailed upon by an unanimous meeting to continue in the office for another year, but he accepted it on the perfect understanding that he would not be held responsible for the policy of that committee; his work would be to see that the business was properly and orderly conducted, but he would not take "sides" on any question. Mr. P. Waterer was re-elected vice-chairman.

The appointment of secretary being the next business, Mr. Moorman proposed and Mr. Rundle seconded that hereafter the Secretary be a paid officer, without a vote upon the committee, which was carried.

Mr. H. Cannell then proposed, and it was seconded, that Mr. R. Dean be elected to the office; and Mr. Moorman proposed, and Mr. Mold seconded, the name of Mr. G. W. Cummins, both of which names went to the ballot. For the post of Foreign Secretary, Mr. Harman Payne was re-elected unanimously. Nominations were then made for members of committee, in the place of those retiring. The result of the ballot was declared as follows:—Treasurer, Mr. R. Ballantyne, General Secretary, Mr. R. Dean, 63 votes; Mr. Cummins, 43 votes; Mr. Dean was therefore declared duly elected. As members of Committee, Messrs. T. Bevan, G. Langdon, A. Taylor, W. Howe, W. Wells, J. P. Kendall, W. Higgs, T. L. Turk, J. T. Simpson, F. Gilks, Robt. Fyfe, W. Daniels, and A. Outram. Messrs. Wells, Fyfe, and Outram are new members. The auditors for the coming year will be Messrs. A. E. Stubbs and J. Cholmeley.

The meeting considered the revised rules of the society, and passed various amendments to same. Rule III. was modified to the effect that delegates of affiliated societies may vote at committee meetings, and that the general secretary may not do so. Under Rule IV., notice of nominations to offices will be unnecessary. Rule VII. will now declare that a member's subscription will become due on the 1st day of January each year. Rule X. further defines that delegates of affiliated societies may vote at committee meetings. Rule XI. will now fix the annual general meeting for the first Monday in February of each year. Rule XII. was modified in the direction of transferring the business of superintending the show from the secretary to the committee. Under Rule XVII. it has been decided to close the accounts at the end of the calendar year, and that printed copies of same be distributed to the members seven days before the annual meeting. Rule XIX. was altered, so that notice of proposed alterations to rules must be made fourteen days before the annual meeting instead of before January 31, as formerly.

On the motion of Mr. Moorman, it was agreed that the following recommendation be sent, as an instruction to the committee:—

"That a sub-committee of five members (exclusive of *ex officio* members) be appointed to enquire—

(a) What places can be obtained for holding our future exhibitions, either by a subsidy as now, or in reliance on our own resources to proceed on independent lines.

(b) To closely examine the whole question of minor shows with the object of ascertaining their advantages or otherwise to the Society.

(c) To fully consider the question of selling the floor space, and to report the result of their investigations to the general committee, who shall formulate such recommendations to a general meeting of members to be held on the first day of the November Exhibition, and that no future fixtures be made before this date."

Mr. E. Calvat was elected an honorary Fellow of the Society.

WARE AND DISTRICT HORTICULTURAL.

MARCH 15.—Mr. Fulford, gr. to R. Walters, Esq., presided at the fortnightly meeting of this Society on the above date, when Mr. Challen, nurseryman, Stanstead, gave a very interesting account on the construction of the "Hot-water Apparatus," wherein he described a system of heating adopted by him, minimising the cost of fixing boilers, and placing the pipes so as to insure efficient circulation in gardens adjacent to streams, and subject to be flooded, and where the stakehole is frequently submerged.

Mr. Challen having occasion to fix a boiler in a place where it would be altogether impossible to get a dry stakehole by sinking the boiler some distance below the level of the ground unless he went to the expense of having the sides and bottom cemented so as to make the hole water-tight, and even then he was rather doubtful of keeping out the water, as the cement would be liable to crack from the action of the heat under the boiler, he determined to fix his boiler on the ground level (the ash-pit only being dug out), he then connected the flow-pipe to the top of the boiler, but instead of taking the pipes on the rise to the extreme end of the houses, he fixed them so as there would be a gradual fall, graduating it right round the houses and back to the boiler, connecting the return pipe to the boiler in the ordinary place. He had used that boiler for two winters, and found it answered very well, the heat being distributed evenly over the houses. After some discussion, a vote of thanks to the lecturer and chairman terminated the meeting. A. H.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

MARCH 10.—Meeting at the Manchester Coal Exchange on the above date. Present: Messrs. G. Shorland Ball (in the chair), G. W. Law-Schofield, Rappart, Greenwood, Sidebotham, Warborton, Cypher, Gratix, Johnson, Weathers, and Gent (Hon. Sec).

G. SHORLAND BALL, Esq., Ashford, Wilmslow (gr. Mr. Hay), showed a very fine form of *Cattleya speciosissima* Ernesti (First-class Certificate), *Dendrobium Paxtoni*, very closely allied to *limbratum*, and two forms of *D. Schneiderianum*.

D. B. RAPPART, Esq., Liscard, Cheshire (gr. Mr. Nicholson), staged the very pretty and rare *Dendrobium Luna* (Award of Merit).

G. W. LAW-SCHOFIELD, Esq., New Hall Hey, Rawtenstall, exhibited the beautiful *Dendrobium Rainbow* (First-class Certificate), *D. Schneiderianum* (Award of Merit), *D. Luna* (Award of Merit), *D. Kenneth*, and *Cypripedium Schofieldianum* (Award of Merit).

THOMAS STATTER, Esq., Stand Hall, Whitefield (gr. Mr. Johnson), showed *Dendrobium splendissimum* Illustre, which we think was good enough to have received a First-class Certificate. It is undoubtedly the best of its section; it obtained an Award of Merit only. The same exhibitor also showed *D. splendissimum*, *D. Juno*, *Cypripedium Rubens*, a very fine cross between *bellatulum* and *callosum* (Award of Merit), a very dark form of *C. hirsutissimum*, and *Lelia Euterpe*.

H. GREENWOOD, Esq., Highfield, Haslingden (gr. Mr. Spurr), showed *Cattleya Trianaei*, *Highfield variety* (Award of Merit), *C. Walkeriana*, *Cypripedium cono-callosum*, and *Cymbidium eburneum*.

S. GRATIX, Esq., West Point, Whalley Range (gr. Mr. McLeod), staged *Odontoglossum Wilckeanum*, with a magnificent spike (Cultural Certificate), *Cypripedium Leyseianum* (Award of Merit), *C. Mary Gratix*, *C. Thompsoni* (Award of Merit), *C. Harrisianum albens* (Award of Merit), *Dendrobium Rubens grandiflora* (Award of Merit), and *Dendrobium crassiusculum* album (Award of Merit).

E. J. SIDEBOTHAM, Esq., Erlesdene, Bowdon (gr. Mr. Glover), showed *Dendrobium nobile* Ballianum, very well flowered (Award of Merit), *D. Desdemona*, and *D. Schneiderianum*.

A. WARBURTON, Esq., Vine House, Haslingden, staged an interesting collection of twenty four varieties of *Dendrobium* blooms, which received a Vote of Thanks.

O. O. WRIGLEY, Esq., Bridge Hall, Bury, staged *Cypripedium gematum* superbum, *C. Mastersianum*, and *C. Leeum* x *Boxalli*.

H. H. BOLTON, Esq., Height Side, Newchurch, showed *Mitella Eudresii*, a beautiful Orchid, very rarely seen.

Messrs. LINCOLN & Co., Brussels, staged *Odontoglossum Ruckerianum* superbum. This was a magnificent variety, and very well flowered, and although it received only an Award of Merit was, in our opinion, good enough for higher honours.

W. DUCKWORTH, Esq., Shawe Hall, Flitton (gr. Mr. Tindale), showed *Dendrobium nobile*, Duckworth's variety (Award of Merit), *D. Leechianum*, and *Cattleya Trianaei* Dorothy.

E. STANLEY CLARK, Esq., Oak Alyn, Wrexham (gr. Mr. Edwards), showed *Cattleya Trianaei*, Mrs. Stanley Clark

(Award of Merit), C. T. Denny, *Odontoglossum crispum*, Mrs. Stanley Clark (Award of Merit), O. Harryannum, *Cypripedium Lathamianum* (Cultural Certificate), and *Dendrobium nobile*.

Messrs. CHARLESWORTH & Co., Bradford, showed four very pretty *Phaius* seedlings—Cooksoni, Norman, Norman aurea (Award of Merit), and N. rosea (Award of Merit).

Mr. CYPRER, Cheltenham, staged a beautiful group of *Dendrobium*, in the pink of health and condition, viz., *nobile splendens* (Cultural Certificate), N. magnifica (Cultural Certificate), N. Fisheri (Award of Merit), and N. majus (Award of Merit).

Messrs. SANDER & Co., St. Albans, showed a very fine plant and good variety of *Lycaste Skinneri* alba (Award of Merit), and a *Cypripedium* seedling, *Harrisianum superbum* x *Boxalli atratum*.

Mr. WM. OWEN, Hartford Nurseries, Northwich, showed *Cattleya Trianaei* Hartfordensis.

H. SHAW, Esq., Heath Field, Birch Vale (gr. Mr. Cliffe), showed *Cattleya Trianaei*, and *Dendrobium nobile* nobiliss.

Mr. C. J. CROSFIELD (no address given) showed a very pretty *Cattleya Trianaei* albens (Award of Merit).

W. H. ALMOND, Esq., Alumsar, Blackburn, showed *Odontoglossum crispum* Dorothy, a very fine spotted variety, of good form (Award of Merit).

SPRING FLOWERS AT BIRMINGHAM.

MARCH 16, 17.—The subscribers to the Edgbaston Botanic Gardens, saw on the above dates, arranged in the conservatories of those gardens, a very early and lovely show of forced spring flowers.

The Society had held several in the past, but for want of funds they had to be dropped. Last year Mr. R. Sydenham generously furnished the needful prizes, and has again done so this year in the hope that it may soon be possible to resuscitate the spring show for the Society; the recent result was to more than double the exhibits, and a brilliant display was furnished. The whole was effectively arranged by Mr. W. B. Latham, the Curator, and there was a crowded attendance each day.

The schedule commenced with single *Hyacinths* in dozens and half-dozens. Mr. W. A. PARSONS, Moseley, and Mr. M. C. CARTWRIGHT, Selly Oak, being in the large class 1st and 2nd, but there were five prizes in each and all the classes. Single *Tulips* made a brilliant bank, these too being shown in twelves and sixes, in pots not exceeding 8 inches wide. The best twelve came from Mr. A. CRYER, gr. to J. A. KENRICK, Esq., Barrow Court, a very fine lot, who was close run by Messrs. J. ISAAC COOKE, of Shrewsbury. Mr. E. W. SHARP, of Edgbaston, had the best six pots. Single *Daffodils* also brought numerous collections. Mr. KENRICK having the best dozen finely-grown and flowered. In the class for six pots, Mr. J. SCANEY, Harborne, was 1st. Judging by the numbers of half-dozens shown, *Polyanthus Narcissi* seem to be very popular forced flowers in the Midlands. The finest of these came from Mr. H. W. HULSE, Beech Lane. Mr. KENRICK had the best six pots of *Lily-of-the-Valley*, finely flowered, and was also 1st for six *Spineas*, three of *astilboides*, and three of *japonica*; and again with six superb *Cinerarias*, chiefly blues.

Mr. ISAAC COOKE had the best collection of cut *Narcissi*, a large and very varied one. Messrs. KENRICK, HULSE, and ISAAC COOKE took the prizes in this order for very beautiful collections of flowering and foliage plants. Messrs. PERKINS & SONS, of Coventry, staged singularly beautiful *Orchids*, *Rose* and *Daffodil* bouquets, with other fine exhibits. Mr. SYDENHAM put up from his private garden a big bank of *Hyacinths*, *Tulips*, *Daffodils*, and other flowers including *Cyclamens*. Amongst *Tulips*, a white *Pottelaker*, having golden base, was unique. The Lady MAYORESS of BIRMINGHAM sent a *Hyacinth*, *Grand Maitre*, carrying eleven well-developed spikes.

READING AND DISTRICT GARDENERS'.

MARCH 21.—"Common Mistakes in Fruit Culture" was the subject of an instructive lecture given by Mr. G. BUNYARD, of Maidstone, before the Reading and District Gardeners' Mutual Improvement Association, on the above date, in the Club Room, "British Workman." Mr. C. B. STEVENS presided over a large attendance of members, including a contingent from the Wargrave Gardeners' Association.

A feature of the meeting was a fine exhibit of *Orchids* by Mr. Woolford, gr. to A. PALMER, Esq., of East Thorpe, including some splendid forms of *Dendrobium nobile* and *D. Wardianum*, two pieces of the latter in 4-inch pans carrying eighty and seventy-eight blooms.

NATIONAL DAHLIA SOCIETY.—A meeting of the committee to make arrangements for the exhibition in September next took place at the Horticultural Club on the 22nd inst., the president, T. W. GINDLESTONE, Esq., in the chair. The judges were appointed in the several classes, and the following special prizes were announced: by F. A. FELLOWES, Esq., a silver cup for the best bloom in the exhibition, show or fancy; by Mr. Thomas Hobbs, for the best show Dahlia, and also for the best fancy Dahlia, shown by amateurs; by Mr. A. Dean, for the best

bunch of six blooms of any white Cactus Dahlia; and by Mr. R. Dean, for the best bunch of any new Cactus Dahlia exhibited for the first time. The president announced that he was at work on the preparation of a catalogue of Dahlias, and was arranging the various sections on much the same lines as the catalogue of the National Chrysanthemum Society.

MARKETS.

COVENT GARDEN, MARCH 24.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
<i>Adiantums</i> , p. doz.	4 12-0	Ferns, various, doz.	5 0-12 0
<i>Aspidistras</i> , per doz.	12 0-30 0	<i>Ficus elastica</i> , each	1 0-7 6
— specimen, each	5 0-15 0	Foliage plants, doz.	12 0-36 0
<i>Azalea</i> , per dozen	30 0-42 0	<i>Genistas</i> , per doz.	9 0-12 0
<i>Cineraria</i> , per doz.	6 0-9 0	<i>Hyacinths</i> , per doz.	9 0-15 0
<i>Cyclamen</i> , per doz.	12 0-18 0	<i>Liliums</i> , various,	
<i>Dracaenas</i> , each	1 0-7 6	per dozen	18 0-30 0
— various, per		<i>Marguerites</i> , p. doz.	6 0-10 0
dozen	12 0-24 0	<i>Palms</i> , various, ea.	2 0-10 0
<i>Erietas</i> , various, per		— specimens, ea.	10 0-84 0
dozen	9 0-18 0	<i>Primula</i> , single, per	
Evergreen shrubs,		dozen	4 0-6 0
in variety, doz.	6 0-24 0	<i>Tulips</i> , dozen bulbs	1 0-1 6
Ferns, small, doz.	1 0-2 1		

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
<i>Asparagus</i> , English,		<i>Mushrooms</i> , per lb.	0 8-1 0
p. bundle, 100		<i>Onions</i> , English,	
heads	5 0-8 0	per cwt.	10 0-16 0
— (Paris), Green,		— French, p. bag	9 6 —
per bundle	4 0-5 3	— pickling, per	
— Spanish	2 9 —	sieve	3 0 —
— Spruce	0 10-1 0	— Lisbon, per case	9 0 —
— Italian	1 4 —	— Valencia, per	
— Cahore	1 4 —	case	12 6 —
— Montauban	2 1 —	<i>Parsnips</i> , per bag	2 0-2 3
— Argenteuil	7 6-10 6	<i>Parsley</i> , per sieve	0 9-1 0
<i>Artichokes</i> , Globe,		<i>Peas</i> , French, in	
per doz.	1 6-2 6	bags, per lb.	0 6 —
— Jerusalem, sieve	1 0 —	— Small pads	4 6 —
<i>Beans</i> , English		<i>Channel Isles</i>	
(Dwarf), lb.	0 10-1 0	(Marrow Peas),	
— Channel Islands,		in handle-bas-	
per lb.	0 10-1 0	kets, per lb.	1 6-2 0
— (Madeira), per		<i>Potatoes</i> , French	
package	3 0-4 0	kids, in boxes,	
— Broad or Long-		per lb.	0 2-2 1
pods, in flat	3 3-3 6	— French kids,	
<i>Beetroots</i> , p. bush	1 6 —	in boxes, per	
<i>Broccoli</i> , Italian,		cwt.	15 0-18 0
package	2 6 —	— Canary, kids,	
— Cherbouze, per		per cwt.	14 0-18 0
doz.	2 0 —	— Channel Isds.,	
— Kent, per doz.	1 0-2 6	framed, per lb.	0 4-0 5
— sprouts, p. bag	2 0 —	<i>Radishes</i> , Long, per	
— per bushel	1 0-1 4	doz. bundles	0 6 0 10
<i>Brussels Sprouts</i> ,		— Round, p. doz.	
bush, |	2 6-3 0	bundles	0 8-0 9
<i>Cabbage</i> , Cherbouze,		<i>Rhubarb</i> , York-	
per doz.	0 9-1 0	forced, per doz.	
<i>Coleworts</i> , in bags	1 6 2 0	bundles	1 3-1 6
<i>Carrots</i> , English,		— home-grown,	
washed, in cwt.		natural, p. doz.	
bags	2 0 —	bundles	3 0-3 6
— French, flat	1 6-1 9	<i>Salad</i> , small, pun-	
<i>Celery</i> , doz. bunches	15 0-21 0	nets, per dozen	1 3 —
<i>Chicory</i> , per lb.	0 4 —	<i>Seakale</i> , per dozen	
<i>Cucumbers</i> , p. doz.	2 0-4 6	punnets	10 0-12 0
<i>Endive</i> , per doz.	1 6 —	— Scotch Kale, p.	
— Batavian, p. dz.	1 6 —	bush	1 0 —
<i>Garlic</i> , per lb.	0 4 —	— per bag	1 6-2 0
<i>Horseradish</i> , per		<i>Shallots</i> , per lb.	0 2 —
bundle	0 9-1 0	<i>Spinach</i> , p. bush	2 0-2 6
— Cheshire (stout		<i>Tomatoes</i> , Canary,	
sticks), per		boxes, 15 lb.	3 6-4
dozen	2 6 —	— trays	1 3-1 9
<i>Leeks</i> , per dozen		<i>Turnips</i> , per bag	2 3 —
bunches	1 8-1 6	<i>Turnip-tops</i> , per bag	1 6-2 0
<i>Lettuce</i> , Cabbage,		— per bush	1 0-1 3
per doz.	1 0 —	<i>Watercress</i> , p. doz.	
— Cos, per doz.	3 0-4 0	bunches	0 6-0 3
<i>Mint</i> , per dozen	6 0-9 0		

Broccoli.—The Italian consignments are not in such good condition as hitherto. Brussels Sprouts are few. The supply of Cucumbers is moderate. Horseradish, loose, from Cheshire, is something new. Onions keep firm in price, and will probably remain so until consignments arrive from Egypt. Rhubarb from Yorkshire is not quite so large a trade as last week, and prices easier. Seakale is rather cheaper. Turnips (green round) appear for the time wonderfully good.

POTATOES.

We have had larger arrivals from the Continent during the past week, but owing to cold weather prices have been supported. Maincrop and Saxons, 105s. to 120s.; Magnums and Bruce, 100s. to 120s.; Blacklands, 100s. to 110s.; Dunbar Maincrop, 125s. to 130s. per ton. Foreign Ware, 4s. to 5s. per bag. New Potatoes, 11s. to 20s. per cwt. John Bath, 82 and 84, Wellington Street, Covent Garden, W.C.

OUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Arums, 12 blooms...	3 0-4 0
Azalea, doz. sprays...	0 6-0 0
Bouvardia, pr. bun.	0 6-0 8
Carnations, pr. doz.	
blooms...	1 0-3 0
Daffodils, doz. bun.	2 6-6 0
Eucharis, doz. doz.	3 0-4 0
Gardenias, 12 blooms	2 0-3 0
Hyalanth, Roman,	
doz. bunches...	4 0-6 0
Lilac, Fr., p. bunch	3 6-4 6
Lilium Harrial, per	
doz. blooms...	3 0-4 0
Lily of the Valley,	
dozen sprays...	0 6-1 6
Maidenhair Fern,	
per 12 bunches...	4 0-8 0
Mignonette, dozen	
bunches...	2 0-4 0
Narciss, various, per	
dozen bunches...	1 6-3 0

ORCHID-BLOOM in variety

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, Californian,	
cases, New-	
town...	11 0-13 0
Canadian, bar-	
rels, Winesap 26 0	—
— Spie...	30 0
— Golden	
— Russett 30 0	—
— Ben Davis 28 6	—
English, bush,	
Wellingtons 15 10-20 0	
— Souering...	8 0-12 0
— F. Crab...	8 0-10 0
— Beeding...	8 0-10 0
Cob-nuts, p. 100 lb.	16 0-18 0
Figs, per 12 lb.	8 0-18 0
Grapes, Gros Col-	
mar, per lb...	3 0-4 6
— Alheria,	
dozen lb...	9 0-10 0
— Jersey, n. Blk.	
Hambro...	3 0-4 0
— Cape, per. box	
(inferior)...	4 0-10 0
Pears, Californian,	
half cases P.	
— Barry (Marie	
Louise)...	10 0
Pine-apples, from 1 6-4 0	
Strawberries, p. lb.	10 0-12 0

Som home-grown Apples quoted have kept remarkably well. Cobnuts are a dull trade, and there is little demand. Grapes, Capes boxes come to hand in bad condition. Jersey new are beginning to arrive.

SEEDS.

LONDON: March 23.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., report to-day's market thinly attended with, for the time of the year, a comparatively small business passing. Some warm rains are now much wanted to bring on the sowing demands. As regards Grass and Clover-seeds, buyers are at present able to fill the wants for a small outlay. Alsike is scarce and dearer. For Tares there is a fair inquiry, whilst Rye continues in good request. Scarlet Runners are advancing in price, but Canadian Runner Beans continue very cheap. Mustard, Rape, and Linseed are firm. The sale for Peas, Haricots, and Lentils is slow. There is no change this week in Bird-seeds.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending March 19, and for the corresponding period of 1897, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1897.	1898.	Difference.
	s. d.	s. d.	s. d.
Wheat	27 11	35 6	+ 7 7
Barley	22 8	28 0	+ 5 4
Oats	16 2	17 10	+ 1 8

FRUIT AND VEGETABLES.

GLASGOW: March 23.—The following are the averages of the prices at this market during the past week:—Apples, 4d. to 8d., per lb.; Grapes, home, 2s. to 3s. do.; do., foreign, 4d. to 6d. do.; Cabbages, Spring, 6d. to 8d. per doz.; Parsnips, 4s. to 4s. 6d. per cwt.; Herbs, 1d. to 2d. per bunch; Leeks, 1s. 6d. to 3s. per dozen bunches; Mint, green, 9d. to 10d. per bunch; Onions, Dutch, 6s per bag; do., Portugal, 9s. per case; Parsley, 1s. per stone; Potatoes, best, 10d. per stone; Carrots, 2s. 6d. to 3s. per bag; Artichokes, 3s. to 3s. 6d. per sieve; Cucumbers, 1s. to 1s. 2d. each; Lettuce, round, 1s. 3d. per doz.; Radishes, 1s. do.; Horseradish, 1s. 6d. to 2s. 6d. bundle; Mushrooms, 1s. to 1s. 2d. per lb.; Beetroot, 6d. to 7d. per doz.; Brussels Sprouts, 1s. to 1s. 3d. per stone; Spinauch, 3s. to 3s. 6d. do.; Rhubarb, 10s. to 12s. per cwt.; Turnips, Swedes, 1s. to 1s. 3d. per bag; do., white, 1s. per large bunch; Celery, Scotch, 9d. to 1s. 6d. per bunch; do., English, 1s. to 2s. do.; Cabbages, Red, 1s. 6d. to 2s. 6d. per dozen; Savoys, 1s. to 1s. 6d. do.; Broccoli, 2s. 6d. to 3s. do.; Greens, 5s. to 6s. per 10 dozen.

LIVERPOOL: March 23.—Average of the prices at undernoted markets:—St. John's: Potatoes, 1s. 2d. to 1s. 4d. per peck; Cucumbers, 6d. to 8d. each; Grapes, English, 3s. to 4s. per lb.; do., foreign, 8d. to 1s. do.; Pine-apples, English, 4s. to 6s. each; Mushrooms, 1s. 6d. per lb. Birkenhead: Potatoes, 1s. 2d. per peck; do., new, 2d. to 6d. per lb.; Cucumbers, 6d. to 8d. each; Grapes, English, 2s. 6d. to 4s. 6d. lb.; do., foreign, 8d. do.; Pine-apples, English, 5s. to 7s. 6d. each; do., foreign, 3s. 6d. to 5s. 6d. do.; Mushrooms, 1s. to 1s. 6d. per lb. North Hay: Potatoes, per cwt.; Giants, 4s. to 4s. 4d.;

Main Crop, 4s. 10d. to 5s. 9d.; Bruce, 4s. 4d. to 4s. 10d.; Turnips, 6d. to 8d. per doz. bunches; Swedes, 1s. to 1s. 3d. per cwt.; Carrots, 2s. 3d. to 2s. 9d. do.; Onions, foreign, 11s. to 14s. do.; Parsley, 4d. to 6d. per dozen bunches; Cucumbers, 3s. to 4s. per dozen; Cauliflowers, 1s. 3d. to 2s. 6d. do.; Cabbages, 4d. to 5d. do.

CATALOGUES RECEIVED.

THE SURREY SEED COMPANY, Redhill—Farm Seeds.
WM. CLIBRAN & SON, 10 and 12, Market Street, Manchester—Farm Seeds.

ISAAC HOUSE & SON, Westbury-on-Trym—Hardy Flowers and New Giant Violets.

MAURICE PRICHARD, Riverslea Nursery, Purcell, Christchurch, Hants—Alpine and Herbaceous Plants.

THOMAS KENNEDY & CO., High Street, Dumfries—Florists' Flowers, Herbaceous Plants, Roses, Stove and Green-house Plants, &c.

BARR & SONS, 12 and 13, King Street, Covent Garden, London—Hardy Perennial and Alpine Plants.

HARRISON & SONS, Leicester—Agricultural Seeds.

WALTER SIEHE, Mersina, Turkey in Asia—Re-introductions in Plants and Seeds from Cilicia and Cappadocia.

GARDENING APPOINTMENTS.

MR. J. W. DISTANCE, Foreman at Matten Hall Gardens, Corbridge-on-Tyne, as Gardener to Major-General DUNCAN, Kilmick Percy, Pocklington, Yorkshire.

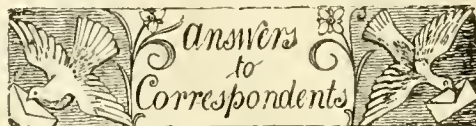
MR. FRANCIS GORDON, for the last five years Foreman at Moncrieff House, Bridge-of-Earn, as Gardener to Sir ALLAN MACKENZIE, Bart., of Glenmick, Ballater, N.E.

MR. WILLIAM POOLE, until recently Head Gardener at Cotteshall Manor, Godalming, as Head Gardener to the Right Hon. Sir ALGERNON WEST, K.C.B., Wanborough Manor, Guildford, Surrey.

MR. WALTER ALLSOP, for some years Foreman under his father at Dalton Hall, Hull, as Head Gardener to the Right Hon. J. F. S. FOULJAMBE, Osberton, Worksop, Notts.

MR. JOHN WEATHERALL, lately Foreman, Cowdenknowes, Earlston, Berwickshire, N.B., as Gardener to Miss HOPE, Donavon, Crieff, Perthshire.

MR. FREDERICK JOYNER, late Gardener to the Earl of DUDLEY, as Head Gardener to Captain the Hon. HERBERT ALSOPP, Walton Bury, near Stafford.



BOOKS: *Inc. Kneller*. There is no new book in print, but you might be able to pick up one at the second-hand book-stalls.

"CACTUS JOURNAL," &c. *Cercus*. Direct your enquiry to the publishers of the Journal, Messrs. W. H. & L. COLLINGRIDGE, 148 & 149, Aldersgate Street, London.

CEYLON: *Trinco*. Both the P. & O. and the Orient Line; the former weekly, and the latter fortnightly. The Orient Line would probably be the cheaper, and the fare about 15 guineas. To obtain an idea of the climate of Ceylon, you could hardly do better than obtain *Hints on Gardening in India*, by G. Marshall Woodrow, printed at the Education Society's Press, Byculla, Bombay; and probably obtainable through Ed. Arnold, Publisher, Southampton Street, London, W.C. No variety of the Potato (*Solanum tuberosum*) would succeed in the tropical climate of Ceylon.

DISEASED LEAVES: *Constant Reader*. The leaves of Portugal Laurel are infested with a fungus giving off spores. The other Laurel leaves sent do not, however, show the same fungus. If only the shrubs of a single area are sickly in this way, it probably indicates something wrong with the soil, defective drainage, "pan," or some such cause affecting the roots. This would weaken the shrubs and render them liable both to fungus attack and discoloration.

DENDROBIUM WARDIANUM: *Veritas*. The basketing or potting should be done immediately after flowering; but surfacing with fresh sphagnum, and disturbing them as little as possible, is your best course, now that the young pseudo-bulbs have grown a foot in length. The plants do best and look the most graceful when grown in wooden baskets, and if a plant be in need of much more space, put the whole basket, plant and all, into a new basket, packing it round with small potsherds and sphagnum-moss, not so much as will exclude air or keep the moss too wet, but lightly, yet firmly.

GARDENERS' BENEVOLENT: *Another Subscriber*. Your letter was received with many others, but we did not consider under the circumstances that it was

necessary or desirable to go into personal details. All the candidates are worthy, or the committee would not have sanctioned the publication of their names.

MANURE: *F. F., Sleaford*. We do not undertake to analyse manures or soils, as this work would entail more time than we could afford to give. If, however, you are a Fellow of the Royal Horticultural Society, you may have either one or the other analysed by an expert at a cost of less than the usual fee. Address the Secretary, 117, Victoria Street, Westminster, S.W.

MILDEW ON VINES: *J. H. S.* Use half an ounce of sulphide of potassium in 1 gallon of water, and apply with the syringe. More than one application may be necessary.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*Wills*. 1, *Gesnera macrantha*; 2, *Begonia Ingrami*; 3, *Casuarina equisetifolia*; 4, *Pholidota* or species of *Cecylogyne*, not recognisable from specimen sent; 5, *Maxillaria* species; 6, *Cecylogyne fimbriata*.—*C. P.* 1, *Cupressus Goveniana*; 2, *Pinus parviflora*; many thanks.—*M. J., Newbury*. 1, *Winter Savory*; 2, *Asclepias curassavica*; 3, *Forsythia viridissima*; 4, *Thuja orientalis aurea*; 5, *Buddleia globosa*; 6, *Cupressus Lawsoniana*; 7, *Pinus* species, but which is not possible to determine without a shoot with cone; 8, send perfect specimen with flowers.—*S. G., Warwick*. The little round cones are the female and the others the male of *Cryptomeria japonica*.—*I. W.* *Coronilla Emerus*. *H. M. E.* *Erica cirnea*.—*W. J. Taylor*. *Fritillaria meleagris*.—*G. S. K.* 1, *Adiantum hispidulum*; 2, *Adiantum cucuatum grandiceps*; 3, *Oxalis Ortigiana*.

PEAR TREE, *I. T. H.* The swellings you send are what the French call *bourses*. Before flowers, and still more, fruit can be formed, nutritive matter must be stored up within easy reach. This consists of substances, such as chlorophyll, water, starch, sugar, proteids, substances which can be utilised as food, or which, if not themselves nutritive, can be rendered so by the agency of a ferment or other cause. The food must be within easy reach of the growing points, and easily conveyed to them. The swellings, then, are due to the accumulation of nutritive matter as a preparation for the growth of the fruit. In your specimens the preparations are rendered useless, owing to the death of the young wood or conducting tissue. What has killed it we do not know; presumably it was frost. The outer cortex is still alive, and apparently full of nutritive matter, so that the wood-buds, which are attached to it, have a fair chance of development. If you cut the swelling, either across or lengthwise, you will see the brown wood.

ROOTS II.: *T. H.* It is true, as you say, that roots are formed in particular localities. As to the reason why, we can only say that the conditions favourable to the development of roots must be in existence, and that roots are formed in consequence. The conditions are, a sufficient amount of moisture and heat, and a reserve of nutritious matter in the bulb-scale, leaf, or whatever it may be.

WOODCUTS: *E. E. B.* We have no figures of the plants named.

COMMUNICATIONS RECEIVED.—Nova Scotia School of Horticulture.—W. G. S., Leeds.—H. R.—G. C. H.—H. Werdmuller, publication unavoidably delayed.—Douglas, Junior, Buenos Ayres.—W. J. B.—T. Archer (next week).—R. D.—H. J. C.—H. R. W.—J. B.—H. M.—H. T. M.—R. L. H.—C. B.—T. S.—E. J.—E. C.—E. S.—Dr. H. Roberts.—A. D.—W. R.—H. W. W.—W. J. B.—U. D.—A. J. L. (next week).—F. J.—E. R.—H. H., Carlisle.—"Lilium."

DIED.—JOHN FARQUHARSON, nurseryman, of Wrexham, North Wales, on the 15th inst., age 74.

CONTINUED LARGE INCREASE in the CIRCULATION of the "GARDENERS' CHRONICLE."

Important to Advertisers.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED, and that it continues to increase weekly.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES of GARDENERS and GARDEN-LOVERS at home, that it has a specially large FOREIGN and COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.

(For Weather, see p. xiv.)



THE

Gardeners' Chronicle.

SATURDAY, APRIL 2, 1898.

THE HOME OF CARYOTA URENS.

THERE is, generally speaking, to the youthful mind a certain glamour surrounding the term Palm, primarily produced perhaps by the frequent mention of the name in holy writ, and the representations of the tree in books and pamphlets written for the young. As a child, the first book I had the patience to read from cover to cover was *Paul and Virginia*, and it was only very recently that I stumbled across a copy of the same book, and read it again with interest. The first reading gave birth to the longing to visit the tropics. This desire grew till I reached the state of manhood, when it was somewhat suddenly gratified, and I set sail in the year 1862 for India.

In those days Palms were not to be seen on "coster's" barrows, otherwise the desire to visit foreign climes for the sake of seeing their Palm-groves might have been somewhat damped. I had visited the Palm-house in the Edinburgh Botanical Gardens, and before embarking at Southampton I paid a hurried visit to Kew. What I saw at these two places only whetted my desire to pursue my journey to the East.

Arrived at Malta, I had the satisfaction of seeing Palms growing, not under glass, but under the sunny sky. Alexandria came next, with its cloud of windmills and clusters of Date-palms. Then the journey from thence to Cairo revealed a country mostly under water, with the stems of the Date-palms in the numerous groves standing in the flood, and gratefully taking up the revivifying waters of the Nile, their plumes tossing and waving as if in delight. Bombay, with its limited number of cultivated Cocoa-nut Palms, brought renewed pleasurable feelings; but Calicut being my destination, I was totally unprepared for the glorious sight of cultivated Cocoa and other Palms which met my view as I coasted along the Malabar coast for several hundred miles in a native craft.

At first I was puzzled to know what the green belt reaching to the very sea consisted of. Our craft keeping well off shore, it was not till approaching the port of Calicut that I came to know that this broad evergreen band, reaching for so many hundred miles, was made up solely of Palms, the Cocoa-nut predominating, of course, with an occasional patch of Areca and other species.

On landing late in the evening I was conducted to the house of a friend situated on rising ground, and commanding a full view of this wonderful Palm zone. I slept that night in an upstairs-room with a spacious balcony, used in these hot climes as a promenade in the mornings and evenings. At daybreak I was aroused from a refreshing sleep by a native

servant, who brought me a welcome cup of tea and slice of toast. Light was streaming in by the balcony windows. The sea-breeze had just begun to blow, and I could hear the distant murmur of the waves on the sea-shore, the plaintive screams from the flocks of kites as they flitted past, with heads bent downwards in search of their morning meal. These sounds were all that disturbed the silence of the morning air. As I stepped on to the balcony I shall never forget the sight that presented itself to my gaze. I looked down upon a veritable sea of Palms, gently waving their magnificent fronds in the light morning air. The house was surrounded by them, up to the very walls, and as far as the eye could reach nothing but Palms. Monotonous, you may say; yes, but very grand in its monotony! At that moment I thought of Edinburgh and Kew, and smiled. Mine host joined me on the balcony. I did not wish him good morning, but instead exclaimed, "That sight is worth a hundred voyages from Southampton to Malabar!"

It was difficult to imagine oneself in the midst of a thickly native-populated district, the scene having a certain wild appearance about its giving rise to the thought of the calm solitude of the jungle, and the absence of man. This illusion was quickly destroyed by a subsequent walk through the Palm-groves. Then were seen the innumerable native huts, with walls and roofs composed of the trunks and fronds of their loved Cocoa-nut Palm, nestling amongst the contorted stems of the growing Palms, and effectually protected from the burning heat of noonday by their glorious crowns of spreading fronds. This Palm, as it is cultivated in these climes, has no pretensions to the straight-stemmed dignity of the Areca, that "arrow-shot from heaven," the Palmyra Date, or Caryota; but the groves of stems appear in wanton entanglement, leaning in all directions, but always with the crowns turned heavenwards.

Occasionally, but not often, does the stem divide eight or ten feet from the ground, and produce two crowns of leaves. I do not think that this Palm is included in the list of sacred trees of the Hindus, but they seem to treat it with the same care and affection as if it were. Sometimes they will build their huts around the stem of a Cocoa-palm, thus giving the tree the appearance of having grown through the roof. So far as I can remember, it used to be calculated that each Palm-tree yielded, on an average, from nuts and "teddy" about two rupees (four shillings) per annum, so that an acre of Palms calculating 400 trees to the acre, would yield an annual income of £80, no small sum to a native proprietor.

After a week's stay at Calicut, amongst its Palm-groves, Mango, and Breadfruit-trees, I started for my final destination, viz., the Coffee-producing district of Wynaad in Malabar. To reach this I had to cross the Western-Ghaut chain by a pass in the mountains, and it was thus I first came in contact with tropical vegetation in one of its grandest phases.

Quitting the Bamboo forest at the foot of the mountains, and before reaching the mighty evergreen forest, a belt of sub-arborescent vegetation is encountered. In riding slowly through this I can well remember being struck with the extreme beauty of two plants, viz., *Lagertrœmia Fles-regiæ*, and *Cycas circinalis*. These were growing in abundance, the first-named being predigal in display of its superb rose-coloured racemes, and the latter growing in large groups among granite boulders, which

it draped with its beautiful fronds. Higher up the western Ghaut forest proper commences, and continues till the crest of the ridge is reached, some 3000 feet above sea-level.

The zig-zag road for a considerable way follows the track of a deep ravine, at the bottom of which one could hear the rushing of a mountain stream, but owing to the dense tropical foliage no water was visible. Before reaching the first thousand feet of elevation, an occasional group of tree-ferns was seen on the sides of the ravine, and the thorny Calamus climbing its way to the branches of lofty trees, as if to free itself from the dense foliage beneath, and show to the world its crowns of graceful fronds. As a matter of fact, this was the first wild Palm I had ever seen, but it was—though passingly beautiful—opposed in appearance to the ideas in one's mind of the dignified and independent grace of a Palm-tree proper. Reaching the summit of the Ghaut, it was but a short ride to the first Coffee plantation, where I rested for a day or two, and where I had my first experience of that warm hospitality so well known amongst Europeans in India. Strange that the manager of this plantation should prove to have been an English gardener, the late Mr. James Boosey, an excellent and successful planter, as well as an estimable man.

In going the round of the plantation in the cool of the evening with mine host, I had my first sight of the Caryota Palm in a wild state, which had even a greater interest for me at the time than the surrounding fields of Coffee shrubs, the cultivation of which I had come all the way from England to learn. I saw the noble Palm at its best, a little colony of trees of various heights, the tallest bearing heavy masses of fruit, forming a strikingly beautiful appearance. The bipinnate leaves, with their ultimate divisions shaped like the fins and tail of a fish—together with the huge spadices of golden berries hanging from the brown trunks of the highest trees, give them a unique and elegant appearance. Nature, in one of her mysterious moods, has ordained that these wonderful drooping bundles of golden seeds shall be produced on the adult tree first at the top, and eventually at the very foot of the trunk, when the plant dies. She has, however, made ample provision for the reproduction of this beautiful tree by the enormous quantity of seeds produced by each spadix, and the suckers which the tree throws up. This Palm would seem to shun the interior of the dark mountain forests of the Western Ghauts, and it chiefly grows on their outer skirts where, so to speak, it obtains the better opportunity for the display of its graceful fronds, and enjoys that necessary light and air which are wanting amidst the gigantic forest vegetation. It is also curious and interesting to find that wherever a homestead is seen on the edges of these forests, and overlooking the rice-fields, the ryot, in addition to such beautiful evergreen trees as the Mango, Orange, Jack, Roseapple, and others, is sure to have his garden furnished with a small colony of the Caryota Palm, consisting of from six to eight trees from 70 to 80 feet, down to seedlings of some 2 to 4 feet in height. It is not quite clear whether the ryots have selected these sites for their habitations owing to existing groups of Palms, or have reared the trees from seeds or suckers, but the well-known love of the Hindoo for picturesque spots in or near which to locate his homestead, would justify the opinion that previously existing groups of

the Caryota Palm has influenced his choice of a site for his homestead.

On the Neilgherry Mountains there exists a singular race of pastoral folk named Todas, few in number, illiterate, lazy, dirty, immoral, and degraded, and yet these people have admittedly selected the very loveliest and most picturesque spots on all those beautiful mountains for the building of their huts and villages.

That this Palm is known to require plenty of light and air for its development is shown by the fact that when small clearings are made in the forests of Malabar by the jungle tribes for the purpose of cultivating Cardamoms, Caryota urens is sure to make its appearance, together with the young seedling Cardamom plants, doubtless coming into existence from seeds which have lain under the thick coating of vegetable matter together with those of the Cardamom, it may be for centuries, awaiting the advent of light and air to effect germination. It is perhaps worthy of mention that Cardamom cultivation in Southern India consists solely in first felling small patches in the great forests, and afterwards simply keeping the brushwood low by one or two yearly cuttings with the bill-hook, the Cardamom plants appearing in abundance and producing fruit in the course of three years without any other cultivation whatever, or artificial sowing of seed. Yet another proof, I think, may be found that the Caryota will not succeed in the too close proximity of other trees, in the fact that in the Bamboo or deciduous forests which stretch from the foot of the Western Ghats to the confines of Mysore, occasional patches of evergreen forest occur containing trees exactly similar to those found in the parent forest but completely isolated, and frequently separated by many miles of Bamboo jungle. The soil, too, of these patches in every way resembles that of the western slopes, and is inlaid, as it were, into the black mould of the Bamboo belt. These isolated clusters of evergreen trees are inexpressibly cool and refreshing to the eye during the hot and dry months of the year, and when the surrounding Bamboo clumps and hardwood-trees are destitute of foliage.

The natives have instinctively fixed upon these beautiful spots for the location of an idol, partly surrounded and protected by a wall of rough stones, so that they are all tinged with the glamour of sanctity; and woe betide the person who dares, in any way, to profane these spots.

I can well remember during my noviciate in the Coffee districts, having, from sheer ignorance of how seriously I was offending, felled a tree on one of these sacred places for the sake of its timber, and being pounced upon by the custodian of the temple in the form of an elaborately-dressed Hindoo lady, who first of all abashed and confounded me with a torrent of choice abuse in the Malayalam language, and then demanded the handing over to her, under threat of legal proceedings, of a certain number of rupees, which I was only too fain to do, and thus prevent further trouble. Needless to say, this was my first and last iconoclastic offence.

In each of these romantic spots, and in close proximity to the stone idol, is sure to be found a group of the lovely Caryota urens waving their graceful fronds and, as it were, watching and guarding the natives as they come to worship. Amongst the stones, Ferns of various species have taken hold naturally, but giving the impression that they have been placed there by the hand of man.

This Palm, together with its congener, Caryota sobolifera, is used in England in sub-

tropical gardening, but not to the extent that its graceful beauty would justify. I would dearly like to see a group of this Palm arranged on an English lawn similar to those I have so often stood and admired in the wilds of Malabar. J. Lowrie.

ORCHID NOTES AND GLEANINGS.

STANHOPEA EBURNEA.

This is a pretty white-flowered species of this rather unpopular genus. A plant is now flowering in the Cattleya-house here, and a glance at the flowers, which, with the exception of a few scanty purple markings on the lip, are pure white, at once show its near affinity to *S. grandiflora*, although its odour is scarcely so powerful. *S. eburnea* was introduced in 1828, but was first flowered at Knippersley Hall by Mr. Bateman in 1832. It is a native of Brazil.

LYCASTE SCHILLERIANA.

This strong-growing species is very distinct both in its flowers and the size of the pseudo-bulbs, which bear leaves 2 feet or more in length. The flowers are borne upon long pedicels, and droop somewhat. The sepals are yellowish-green, turning to white at the base upon their inner surface; the sepals also are white, while the long lip is reddish-brown, has a slightly recurved margin, and there are a few hairs under the column. It is a native of Central America, and succeeds well when grown with other species in the Edinburgh Botanic Gardens. R. L. H., Edinburgh.

MARKET GARDENING.

WIRE TRELLIS.

(Continued from p. 156.)

As stated in the *Gardeners' Chronicle* for February 5, p. 80, these trellises upon which to train the shoots and branches of Vines and Peaches, the bine of Melons and Cucumbers to in houses, are easily and cheaply made, and these should be fixed forthwith in houses of recent erection. Low, span-roofed houses, having rafters 8 feet in length, will require four 6-foot lengths of 1 inch wide, and $\frac{3}{4}$ -inch thick iron provided with six $\frac{1}{4}$ -inch circular holes at 1 foot apart for fixing the wires to, in addition to two counter-sunk holes (one at each end) for securing same to end wall-plate, and door-posts at from 10 to 12 inches from the roof-glass, and a like distance from the side wall-plate, two of these (one at each side) being fixed as indicated at each end of house or sections of houses, using stout 1 inch long screws for the purpose. This done, secure four lengths of $\frac{3}{4}$ -iron (same width as above), to the end of the wall-plates and the end (principal) rafters, midway putting two screws in each end of these upright strengthening irons, which should be cranked a little at the top to ensure equal space—bottom and top—between each stay and the glass, the framework of trellis being flush with said stays, glass-side. Then pass a 3-inch long galvanised belt, having an eye at one end to fix the wire to, and a nut on the other, with the thread cut pretty well back to the eye to enable the process of straining one and all the wires being efficiently done. No. 14 wire will be strong enough for all purposes of this kind. One cwt. of this size of wire contains approximately 2,320 yards. Pass the ends of each wire about three inches through the several eyes at one end of the house, and twist them neatly round a few times close up to the eyes with a pair of pliers, then take a length of the wire the full length of the house, cutting it off a few feet longer. Pass the end through the eye corresponding with the one at the other end, straining this with the hands before bending it at the eye of bolt preparatory to cutting it off 3 or 4 inches from that point, this being twisted round the wire as indicated. Then follows the tightening process. Two persons screwing up the nuts (one at each end) same time with small spanners, cycling spanners being convenient and efficient tools. A piece of wire or a brad-awl should be put through the eye when turning the nuts with the spanner. In this way the wires

may be strained as tightly as possible. Small galvanised screw-eyes should be screwed into every other rafter (under-side) at 2 feet apart, those in the second and succeeding lines of wires intersecting each other, with the result that the screw-eyes in each and every rafter are 2 feet asunder, and the wires 1 foot apart, thereby distributing the weight of crop suspended from each trellis equally over the roof-surface. The wires should be suspended from the screw-eyes by hooks made of the same material, 8 inches long (clear), and turned up half-an-inch at each end at right angles, one end being passed through the screw-eye, and the individual wires resting in the other, thus completing a simple and efficient trellis, which is practically on hinges, and consequently admits of the wires being tied together, so as to afford more head-room while the borders underneath are being dug, &c. Moreover, the wires, thus fixed yield easily to "head and back-pressure" on the part of those engaged in the work of training the plants, &c. In the case of larger houses than the one mentioned above, the length of trellis-frames should be determined by the length of rafters, and in order to make the most of internal space, the frames can be bolted together under the apex, where space between floor and bottom of ridge will admit of this being done. H. W. Ward, Rayleigh.

(To be continued.)

HARDY PERENNIALS FOR CUTTING.

There is quite a large number of hardy perennials at once suited to present planting, and equally well suited to growing for market. The chief difference between plants so grown for market purposes and the same subjects grown in well-prepared borders, that in all probability have been under cultivation for many years, is the outcome generally either of constitution, or that free-flowering or profuse tendency, which in the end renders the subjects profitable to the growers. There are many beautiful things, too, that are fully as good in a cut state as many I shall hereafter name, which, for various reasons, are not profitable when treated in rough-and-ready methods as compared with the gentler art that usually prevails in the garden. In a previous issue of the *Gardeners' Chronicle*, English and Spanish Irises were mentioned by Mr. Ward, and I refer again to these to illustrate what I have just said, because few plants are more beautiful or more suited for sale. And yet how very few of those who have given these lovely bulbous plants field culture can venture to assert they are a really profitable crop when so grown!

Let only those speak who have not less than four or six years' experience of field culture, growing, or at least trying to grow, the same bulbs successfully. In some kinds of soil these plants fail altogether, sometimes even in the early stage; while the instances of success are found chiefly in warm, well drained soils, and where improved methods of culture prevail. In low-lying clay soils these Irises, or many of them, would fail to put in an appearance in the second year, just at the moment when the flower-farmer is hoping to have nicely-established bulbs. Moreover, it is a crop that the flower-farmer must take to somewhat cautiously, as it is not a difficult matter to bury £100 or £200 in a few rods of ground when planting the most distinct, and therefore the most reliable, of the Spanish Iris. Where previous experience is favourable to them, I say plant by all means at a seasonable moment; but with no past experience to go upon, it would be unwise to proceed. This is the more so when so large a number of profuse-flowering perennials may be quite easily grown, and by the very abundance of their flowers bring in money when the ground occupied is valued in connection with the crops obtained from it. An instance of this may be cited in the Poppy family, e.g., *Papaver nudicaule*, and varieties album and miniatum. These, and the Shirley Poppies so-called, though not to be classed as representatives of perennials, are profitable by their very profusion, seeing flowers may be gathered day by day for many weeks together. The same profuse flowering holds sway in *Coreopsis grandiflora*, *C. superba*, and *C. lanceolata*, all excellent, free-flowering, and of good colour. These plants begin to flower quite early in summer,

and continue till frost cuts them off. The first of these is probably the best one. Other good and profuse flowering things are Gaillardias that flower when established from July till late autumn. Seeds of these sown on a gentle hot-bed, similarly to Asters and stocks, and planted in prepared ground in June, may afford a few flowers the first year. If this is not possible the seed should be sown early in July, and planted out in September. These plants are quite

LACHENALIA PENDULA VAR. AURELIANA.

The figure represents the handsome *Lachenalia pendula* var. *Aureliana* shown by Mr. C. G. Van Tubergen, Jun., of Zwanenburg, Haarlem, at the Royal Horticultural Society on March 8 last. It is not only one of the most beautiful of the *Lachenalias*, but its history opens up a wide field for speculation as to its

was it developed into a much finer thing than any of the wild forms at present known in the Cape? The altered habit of the plant, and its more ornate flowers, seem to say that it was a cultivated plant by the people living near the Via Aurelia, and probably a garden-raised plant, and a selected form, and on the garden returning to the wild state again in the manner they have been doing over certain areas in all times, the plant has struggled on, sometimes plentiful and sometimes in danger of being stamped out, until history repeating itself, the exploring party again secures its place in gardens. The same might be said, probably, of many a new introduction which had been cultivated and again run wild, for although in every age gardeners think themselves the first to really pursue the calling energetically, the most ancient history, and the oldest works of art, tell us, of gardening as intelligently pursued thousands of years ago as at the present time.

African plants seem to have been widely distributed in the early ages, and run wild, and as evidence, it is on record that some of the African Iridæ and Amaryllidæ have been gathered wild in South America. For example, some years ago, Messrs. Low's collector gathered wild, and sent home as a new plant, *Amaryllis Belladonna*, whose coats of silky threads tells us plainly its African origin, as do the net-like tunics of the *Watsonias*, *Gladiolus*, &c. On the other hand, the thin-skinned S. American bulbs have been found in Africa; and, as a reasonable solution, it is suggested that the slave-traders have been instrumental in bringing about the exchange. The flowers of *Lachenalia pendula* var. *Aureliana* are of a rich crimson colour. The flowers are numerous and handsome, as will be seen by reference to the illustration, but the effective buds do not continue to the apex as there seen, but a few at the extreme point are abortive. It flowers about a month later than the type. J. O'B. [The introduction must have taken place in pre-historic times, surely! Ed.]

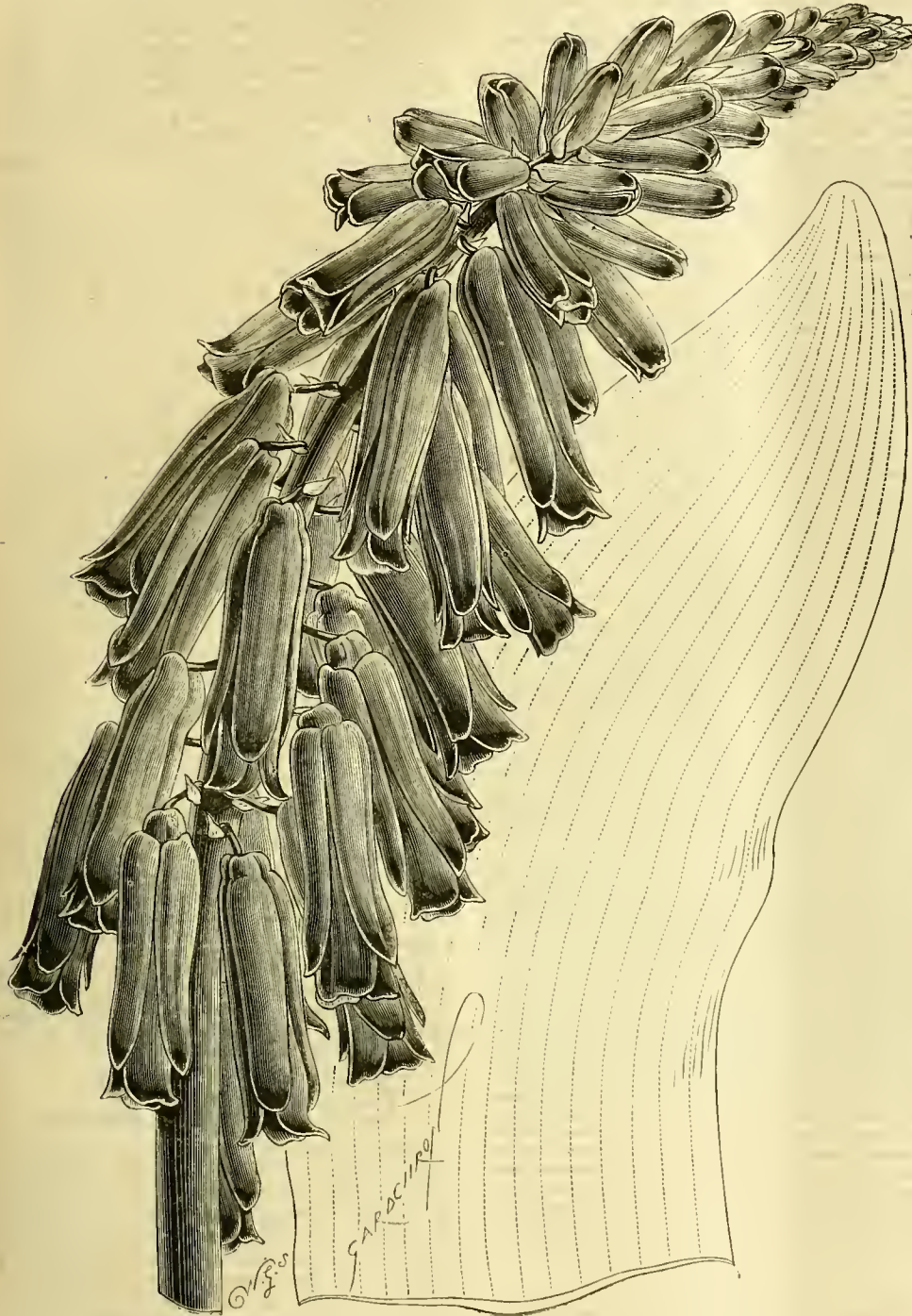


FIG. 75.—LACHENALIA PENDULA VAR. AURELIANA: FLOWERS RICH CRIMSON.

THE CULTURE OF CATTLEYAS.*

In the year 1817, 78 years ago, the naturalist, William Swainson, was roaming about in his hunting-ground, as he called it, in the interior of the Brazilian forests. Here he discovered a wonderful flower of indescribable beauty, of which he had never seen or heard before.

The plants are pseudo-bulbous Epiphytes in character and habit, growing on the trunks and large branches of trees, with large numbers of lizards and brilliantly-coloured small snakes of different kinds sporting themselves upon the trees and among the flowers; and the stream, which meandering through this virgin wood, passed immediately beneath the new treasure, swarmed with long-nosed alligators. With considerable difficulty Mr. Swainson procured some of the plants and sent them to this country, with as realistic an account of their nature and beauty as was in his power. Their arrival in England, accompanied by such a glowing account from such a man, created a large amount of interest, if not excitement, among the then limited number of Orchid-growers. And in course of time, when it developed its inflorescence, and displayed to the expectant Orchidist, the grandeur and beauty of our now well known *Cattleya labiata*, we cannot wonder at the great sensation that was caused among the ardent lovers of this interesting and curious family of plants.

I have not been able to find out who was fortunate enough to be the first to flower this new Brazilian wonder in this country. But the botanical science of the early part of the century could not ally to any other genus of the Orchidaceæ, therefore a new genus must be created for it. Accordingly, Dr. Lindley named it *Cattleya*, in honour of W. Cattley, Esq., of Barnet, Herts, a famous patron of botany and the foremost Orchid amateur of his time.

Since that time, many other species have followed, such as *Intermedia* in 1824, *crispa* in 1826, *guttata* in 1827, *Mossley* and *Skinneri* in 1836, *citrina* in 1838, *granulosa* in 1841, *lobata* in 1847, *Trianoi* in 1856, and *Dowiana* in 1866, and many others, until at the present day there are over fifty species, and more than 160 named varieties, so that there are in all over 200 named *Cattleyas* introduced to this country from different parts, including South and Central America, Brazil, Colombia, Rio Negro, Costa Rica, Ecuador, Mexico, Essequibo, British Guiana, and Venezuela. Besides this, there have been several very beautiful hybrids raised in this country of late years. Perhaps the most beautiful of all the British hybrids is the one that flowered at St. Albans last year, and named "Lord Rothschild."

* Read before the Members of the Devon and Exeter Gardeners' Association recently, by Mr. George Lee, gardener to Miss Lavers, Upton Leigh, Torquay.

hardy, and young plants especially so; and a good strain of *G. grandiflora* will produce almost all the named varieties of this used in commerce. Two good plants not usually grown are *Galega officinalis*, and *G. o. alba*, the last well nigh indispensable. *Lathyrus latifolius albus* is another profitable plant, a row of this 100 feet long, supported by a few rough sticks, would in the second and third year produce a surprising lot of pure white material. E. Jenkins, Hampton Hill.

origin. A botanising party found a single clump of it growing near the summit of Mont Esterel, Alpes Maritimes, in the south of France, in the spring of 1889. As the ancient Roman Via Aurelia is near the place where it was found, a local botanist, the Abbé Pons, named it *L. pendula* var. *Aureliana*. Now, *Lachenalia pendula* and its congeners are natives of South Africa, and therefore it could not be naturally indigenous in the South of France; and the question arises, how did it get there, and how

CULTURE.

In dealing with the culture of these plants, I shall refer to the teachings of others here and there, but I shall confine my remarks mainly to my own experience and my own opinion on the cultivation of Cattleyas.

In order to grow Cattleyas successfully, there must be a suitable structure set apart for their accommodation, or if they have to share the house with any other class of plant, the others must be the subordinate, and take their chance under the treatment that the Cattleyas require; for although most Cattleyas are not very difficult to manage, if you understand their natures and can comply with their requirements, yet I know of no class of plant more exacting or less willing to accommodate themselves to their new surroundings if they are not exactly suitable. To try and get them to take their chance in a house under general treatment with other plants will generally result in failure in a year or so.

The house to grow them in should be either span or three-quarter span-roofed. I prefer the former, built in as light and airy a position as can be found, and should face the sun as much as possible. No wood staging should be used, but all benches should be either slate, cement, or corrugated iron and these, together with the floor, should be covered with shingle or fine gravel to the depth of 2 or more inches, to hold moisture. At some seasons of the year, many of the Cattleyas are benefited by being suspended from the roof; it is wise to make the roof extra strong, and large hanging rods should be placed at regular intervals. Also in the roof, as well as in the front sashes and the brickwork beneath, there should be ample means for an abundant ventilation. Then a heating apparatus should be applied of sufficient power to keep up a temperature of 55° in the coldest weather.

Another very important matter is the grooving of the rafters longitudinally, so as to carry off the drip, instead of allowing it to drop on to the plants. Irreparable damage has been done to many a costly Cattleya through the neglect of this precaution. There must also be made ample provision for water. But this is not always to be accomplished as the cultivator would like. I should say, by all means save the rain-water, for there is nothing equal to it for Orchids, nor, indeed, for any other plant. But I could not advise a large tank, with a body of from 2000 to 3000 gallons of water in it in a Cattleya-house, as I should do in an Odontoglossum-house; but rather a small tank with from 60 to 80 gallons of water, to be replenished from a larger one day by day. Light blinds should be fixed outside the house, to be used in very hot weather, if the cultivator should think it best to do so. Of course, the size of the house must be decided according to the requirements of the case.

IMPORTED PLANTS.

In my experience, unfortunately, I have had to do largely with imported plants; that is, plants as they come home from abroad. But I am bound to admit that the cultivator's success depends largely in the first outset on the collector's discretion, for if the plants are not gathered at the right season, the cultivator will have a far more difficult task in establishing and making good pieces of them. I have seen scores of grand pieces of Cattleya completely ruined from having been gathered while in a growing state. When this is the case, you may be as careful as you can with the immature growth, but in nine cases out of ten it will die away, and the leading eye will die with it. Then you have to start with a back growth, and it will usually take years to get it up to a flowering state.

But we will suppose that we have an Importation in good condition, that is, with the last made growths thoroughly ripened before they were gathered, and with the leading eyes sound but still dormant. In this condition they will keep a long time, suffer many hardships without being injured.

The first thing then will be to clean them. Mr. Williams, in his *Orchid Growers' Manual*, says they should be sponged over. But I say they should be scrubbed. Take a tub, or pail that shall be large enough to submerge the whole of the plants at once, have some soft-soap thoroughly dissolved, and so fill your tub with a solution strong enough for cleaning glass and wood-work, say rather more than an ounce of soap to the gallon. The temperature of the water should be about 90°. Let the plants remain in this for two hours, when they should be thoroughly cleaned with a scrubbing-brush, leaves, bulbs, and roots. After which they should be rinsed in clean luke-warm water and drained. Then they should be closely examined, and with a sharp knife all signs of decay cut away. All dead roots, and all living ones that show any signs of having been bitten or punctured by insects, and any pseudo-bulb with a hole in it should be cut clean away, or the hole cut out. Only in this way can one make sure of being rid of scale, cock-roaches, and the Cattleya-maggot, on which I shall say more further on.

After the plants are drained, a piece of cord should be put around each mass, and they should be hung up to the roof in the shadiest part of the Cattleya-house, with the leaves hanging downwards. They must be shaded from the hot sun if it be spring or summer, and syringed or dipped every day or two, according to weather and the time of year, but not too often, providing there is an abundance of atmospheric moisture in the house. I have found this the best way to induce root-growth, and as these appear the plants should be reversed, and hung up again with their roots downwards, where they remain until these are from half an inch to 1 inch in length, when it is time to pot them. I have found this to be the best way of starting Cattleyas of every kind that I have had to do with except three—Eldorado, Superba, and Schilleriana. These, instead of being hung up in the

Cattleya-house, should be put in the East Indian-house; or, in fact, in the hottest place you can find for them, providing there is sufficient moisture in the air.

POTTING.

The essential requirements for potting Cattleyas are these—clean pots, or teak-wood baskets; plenty of clean pot-sherds, varying in size from half-an-inch to 3 inches; rough fibrous peat, broken up into small lumps, in size from that of a blackbird's-egg to that of a hen's-egg, and with all the earthy and sandy particles beaten out of it; also clean living sphagnum and charcoal. Many recommend coarse sand, but I have discarded it for years, as being of more harm than good for Cattleyas. Some recommend putting equal parts of peat and sphagnum, adding a quantity of pot-sherds and charcoal, and mixing it altogether on the bench. But I prefer to have the ingredients separate, but within easy reach, and use from each as I proceed. Then have a pot, according to the size of your plant, not too large, nor too small, but just to allow the lead of the rhizome to be well back from the edge of the pot. To support the plants, have two or more stiff sticks, which should be inserted among the drainage, right down to the bottom. The drainage should occupy two-thirds of the pot, and the sticks kept in their proper position among it. Cover the drainage with a layer of the sphagnum, then fill up the remainder, mixing in the material as we go on, putting plenty of lumps of sherds and charcoal with it to keep it open, and ensure a free passage for both water and air. If the plants have any roots, they should be placed in position and the material packed carefully around them. But if they have no roots, they should be placed on the top of the material, and fastened firmly to the sticks.

In nearly all cases of pot culture, the plants should be raised above the rim of the pot, say from one to three inches according to size. If using baskets, you need only cover the bottom with large pieces of sherd and charcoal, and then proceed as in the case of pots. But in all cases, the material used should be packed and pressed moderately firm, and the plants securely fastened to the sticks, so as to prevent any movement until the roots have obtained a firm hold upon the material that has been supplied for them. And then after they have been potted, they may be watered carefully, and put into their respective places in the Cattleya-house according to the sorts and the season of the year.

I think it is of little importance whether they are grown in pots, pans, or baskets. But most growers have their fancy, and most like to use a portion of each, for I think it looks more like Orchid-growing to see some baskets and Orchid-pans with holes in their sides than it would to see only ordinary pots as in a collection of other plants.

I prefer ordinary pots for such Cattleyas as *gigas*, *crispa*, *lobata*, as well as for those of the *guttata* group, and *Lelia purpurata*, they are of strong growth, and usually make a quantity of roots. But the smaller and more compact-growing species, such as *Warneri*, *Schrederae*, *Percivaliana*, and *dolosa* might be grown with advantage in baskets and shallow pans; but every careful cultivator will soon find out which will best suit his plants and his purpose.

Cattleyas, if properly treated, will not require potting again for two or three years. Each year as the season comes round for them to start into growth, the dry and rough material on the top should be carefully picked off and replaced with fresh.

But in growing on a collection of established plants, as I have done for nearly twelve years, we shall find each year there are some among them which require a thorough overhauling and repotting, and this is a work which, even by the experienced cultivator, requires great care and judgment in its performance, and is often entered upon with considerable trepidation, especially if the plant under operation should be worth 50 or 100 guineas.

A gentleman, a grower of Orchids in Yorkshire, who is well known in Torquay, in speaking with me on this subject on one occasion, made this remark:—"They should never be so treated until they cry for it, and then it must be done, but with fear and trembling." It often has to be done, and this is the way in which I usually proceed. If there are any living roots attached to the pot, it (the pot) should be broken, rather than run the risk of destroying the roots by pulling them out. Then carefully pick off all the old material, and wash the roots and rhizome of the plant in lukewarm soapy water. Then with a sharp knife cut away everything of root or branch that is dead or dying, and repot as directed for imported plants. This work should be done immediately the eyes begin to swell for starting into new growth.

(To be continued.)

NOTES FROM A LITTLE CORNISH GARDEN.

(Continued from p. 156.)

MARCH 1.—"A tear the Paphia sheds for each blood-drop of Adonis, and tears and blood on the earth are turned to flowers. The blood brings forth the Rose, the tears the Wind-flower." Well may the scarlet flowers of *Anemone fulgens*, with their jet-black centres, dazzle the mere human eye; for one has but to see them to be convinced of the truth of Bion's story of the plant's origin. It is our most brilliant spring flower; and fortunately it is easy to grow if but left undisturbed. The light and elegant bearing of the flower-stem, and the grace of the

foliage, but serve to make more valuable this perfect flower. In addition to the ordinary kind, I have some of the variety known as Sutton's, whose flowers have a yellow centre.

The blue *Anemone appennina* of Italy has long been in flower, and shows no sign of stopping yet. It literally cushions the ground with its foliage and large sky-blue flowers. The white variety is also very beautiful. *Anemone blanda* is very similar in colour and habit, but blooms some weeks before *A. appennina*. Several varieties of the Wood *Anemone* are of great beauty. I have, in addition to masses of the single and double common varieties, clumps of *A. nemorosa* *Robinsoniana*, with beautiful large opal-blue blossoms, and of *A. nemorosa* *bracteata*, with double white flowers quietly resting on green bracts. The golden *A. ranunculoides* rather reminds one of the lovely buttercups of May. I might go on describing the various kinds of *Anemone* which are worth growing for their beauty until every known *Anemone* were included in the list.

I am trying to grow all the kinds in the florists' catalogues, and each is lovely and interesting. Of course, everyone grows at least a few hundred of the very varied *Anemone coronaria*, which is so useful for cutting, as well as so illuminating in the early spring garden. The mass of carpels in the centre of many of these flowers makes a good landing-place for insects, who come for what they can get from the *Anemones*. This is chiefly pollen, for few of the *Anemone* species produce any honey; bees must go elsewhere for that, and have been seen by Müller to alternate their pollen quest with the search for honey in other flowers. Their pollen is thus the entire stock in trade of the *Anemones*, and they are wisely careful of it. At the smallest sign of rain, and at the onset of dusk, the perianth domes over the centre of the flower, and in many cases the flower-stalk bends that the flowers may droop, and so further protect the valuable powder within. By the way, it will be noticed that most of the white *Anemones* which adopt this habit of periodic opening and closing have their sepals tinted palely blue or red on the under surface. It is believed that this pigment, anthocyanin, has the property of turning light to heat, and so from earliest dawn to the opening of the flower, accumulating a store of useful energy for the plant's use.

My Primroses are almost at the height of their glory. I spoke last month of being able to pick hundreds of blooms from a little border. At the present moment I might pick many thousands from the same border, and (this is the value of the Primroses) I should have as fine a display as ever in less than ten days.

In my January notes I complained of Herrick's simile of primrose colour as like to those with "green-sicknesses." Since then I have come across a much pleasanter reference in Roden Noel's splendid poem called "Early April":—

"Virginal purity of pale Primroses!
Petal on petal of a sister reposes,
And the shadow of either on either dozes."

Of the Daffodils it seems useless to speak. For elegant, classic beauty of form and delicacy of colouring, what can be compared to them? Keats names them as among those things of great beauty whose joy is perennial; Shakspeare and Wordsworth have recorded their loveliness; and Herrick wrote, perhaps, his best-known verses regretting the Daffodil's fragility of life-tenure. The more one grows them the more one sees to admire in them. Nearly all the varieties in the florists' lists—and there are some hundreds—are of great beauty, and there are interesting—though sometimes small—differences between them all. Trumpet Daffodils with white wings, others with sulphur wings, others self-coloured—golden or pale yellow—throughout; Star Narcissi, with every depth of cup, Narcissi with recurved sepals like Cyclamen flowers. Daffodils that look up, Daffodils that look down, and others that look you straight in the face.

Obvallaris, Horsfieldi, Sir Watkin, Emperor, Queen of Spain, Mrs. Langtry, Golden Spur, Gloria Mundi, are but a few names; yet what a picture they

call up in our minds! Daffodils may be purchased in quantity in many beautiful kinds for a small sum, yet it is a dangerous pastime to study such a publication as Barr's *Catalogue of Daffodils*. One is far too apt literally to take Mahomet's advice—"He that has two cakes of bread, let him sell one of them for some flowers of the Narcissus, for bread is food for the body, but Narcissus is the food of the soul."

I have been planting out a few of the lovely new Martin Smith self-coloured Carnations, as well as some old Clove and white Clove. My soil is much too light, but I am trying what plenty of decayed manure about the roots will do. I have been sowing some dozens of packets of seeds in pots, and have the daily joy of opening my frame to see what new seedlings the last twenty hours have brought above earth. I have up already some six varieties of Columbine, several species of Campanula and Primula, as well as a lot of new Primroses and Polyanthus, from very choice seed. Every morning it is almost exciting to walk round the garden in wonder as to what new flowers have just appeared. Advance Tulips, Roses, and the rest, give as much pleasure of a kind as the gorgeous displays which we expect from them in due season.

The spring really is coming. No swallow makes a summer, nor any flower a spring. For months past we have had flowers, but spring is now evidenced by ten thousand co-acting events:—

"Blows the thaw-wind pleasantly,
Drips the soaking rain;
By fits looks down the waking sun,
Young grass springs on the plain.
Young leaves clothe early hedgerow trees;
Seeds, and roots, and stems of fruits,
Swollen with sap, put forth their shoots;
Curled-headed Ferns sprout in the lane;
Birds sing and pair again."

It is tempting, it is almost defensible, to quote the poets when writing of the spring. At any rate, I must ask excuse for referring to some lines of Miss Nesbit's, which will probably not be familiar:—

"And spring is here—but with the spring
Come bitter winds, and cold, cold showers;
Will these not slay the wakening flowers,
And stay their buds from blossoming?
No—in despite of wind and rain,
The year will add to flowers new flowers;
Till summer comes with burning hours,
And all the Roses live again."

Which inevitably recalls poor Philip Bourke Marston's *Before and After Flowering*, where the Violet, just before the dawn, calls to its sisters of yesterday, but receives no answer, for the frost has done its work:—

"No pleasant wind about the garden goes,—
Perchance the wind has gone to bring the Rose.
O, sisters! surely now your sleep is done,
I would we had not looked upon the sun,
My leaves are stiff with pain. O cruel night!
And through my root some sharp thing seems to bite,
Ah, me! what pain, what coming change is this?"

Instead of dreaming in this fashion, however, honest gardeners must set to work sowing their seeds and finishing their spring plantings, or they will find themselves without any flowers to poetise over and enjoy. *Harry Roberts.*

ALOE SCHWEINFURTHI.

WITH regard to this rare species of Aloe, Mr. Alwin Berger, Curator at La Mortola, writes:—"I send you a photograph, taken by Mr. D. Hanbury, of a fine specimen of Aloe Schweinfurthi now (January 31) in blossom in the garden of Commendatore Th. Hanbury at La Mortola. This beautiful Aloe, as your readers probably know, is a native of Niam-Niamland, in Central Africa, and was named by Mr. J. G. Baker, of Kew, after its discoverer, the distinguished botanist and traveller, Schweinfurth. The large thick leaves attain a length of nearly 70 centimetres (2 feet 3 inches), with a breadth of about 18 centimetres (7 inches). They are of a dull glaucous

green, with a narrow red border studded with distant teeth. The inflorescence is more than a metre (39½ inches) in height, divided into numerous branches, each of which bears a spike of about a hundred beautiful closely-packed flowers. These are of a bright coral-pink, and last a long time. The seeds of this interesting plant were distributed from this garden two years ago, and it is to be hoped that the plant may be found worthy of cultivation in English gardens. The climate of the Riviera is undoubtedly one best suited to the Aloe family, and the rich collection at La Mortola shows what can be done in that direction. At the moment there is also

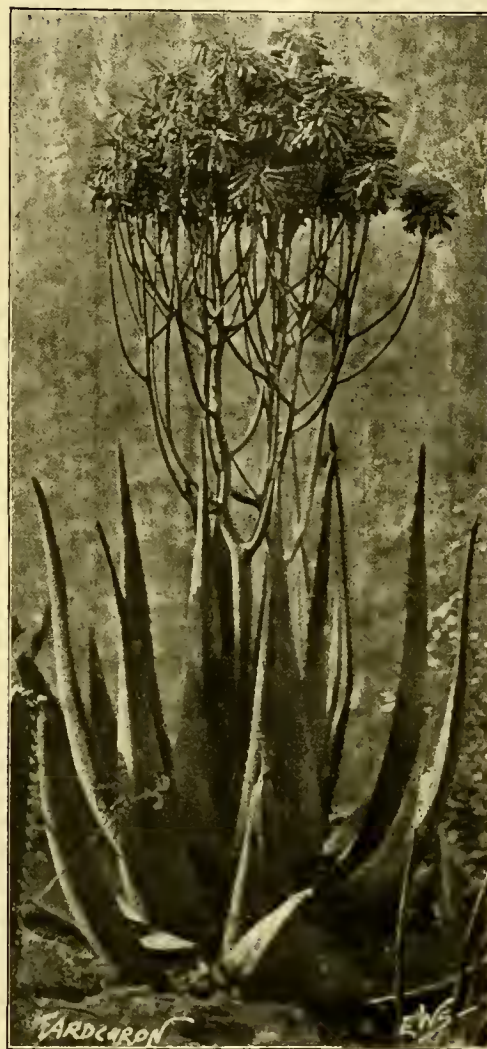


FIG. 76.—ALOE SCHWEINFURTHI.

in bloom another most striking arborescent species, which somewhat resembles the old Aloe arborescens, Miller, but I cannot identify it with any description or figure, and believe it to be a new or undescribed species.

CULTURAL MEMORANDA.

GLADIOLUS FOR LATE FLOWERING IN POTS.

It may be useful to call attention to the great value of Gladiolus of the gandavensis section for greenhouse and other decorative purposes. By potting corms in the month of May, flowers are obtained in the period of September to November, according to the varieties, at a time therefore when flowers of any kind are rather scarce indoors.

Place one large corm in a 6-inch pot in a soil con-

sisting of two-third parts of loam, one-third decayed manure and a small quantity of sand. During the early stage, slightly cover the pots with coal-ashes out of doors, and remove the ashes down to the soil when growth has begun. As a rule, one corm in a pot is preferable to two or three, as it may happen that all the flower-spikes in a pot will not open at the same time. If the autumn is wet, remove the plants to a glasshouse.

TORENIA FOURNIERI.

This pretty plant, having a somewhat upright habit of growth, reaching to a height of 8 to 12 inches, is of varied usefulness. If treated as an intermediate-house annual plant, seeds may be sown in March, and as late as the end of April in heat, pricking off seedlings when they are large enough to handle into pans, afterwards potting them singly, and affording one or two further repottings, the largest pot being one of about 5 inches in diameter. Loam and leaf mould in equal rates, with a small portion of sand, make a suitable kind of compost for Torenia. During growth the points of the shoots should be pinched twice or thrice to ensure bushiness of growth. The plant, after getting established in the last shift, may be placed in an unheated pit till the flowers expand. This kind of treatment only holds good in the warmer parts of the country; and in others an intermediate temperature is best. *J. Baxter, Boldre Grange Gardens.*

TRACHELIUM CÆRULEUM.

This plant will be found a very useful one for the greenhouse and cool conservatory, during late summer and autumn, and the flowers are of a colour that is not too abundant at that season. Seeds of the plant may be sown at about this date and earlier, pricking off the seedlings to the number of three or four round the edge of a large 60-pot, in peaty soil, and either shifting the potful intact, or singly, and pinching out the points to induce several trusses of bloom to come in place of the usual one. If to be used as an edging to small groups and stages, 5-inch pots are a useful size, but larger pots should be used if large plants are wanted. *H. Markham.*

GARDENIA GRANDIFLORA AND G. RADICANS.

I make a practice of striking cuttings of Gardenias early in the spring, before, therefore, the sun gets much power, and obtain strong plants in the course of the season. I have had plants from an early strike which have produced sixty blooms apiece in about 1½ year from the cutting stage. I make a practice of stopping the strong shoots three or four times at an early period, and frequently apply soot-water, and occasionally a sprinkling of an artificial manure when the plants have plenty of roots. *H. Markham.*

CURCUMA ROSCOEANA.

This handsome species of the extensive genus of Gingerworts has of late years fallen into comparative neglect, which is somewhat remarkable, seeing the species generally are of easy culture, and this one makes a fine display in the warm conservatory and stove in the autumn months. Another advantage that Curcuma Roscoeana has, is the long time it lasts in bloom; and even when not in flower, its spreading light green leaves, which are, when fully developed, about 18 inches in length, have a fine appearance. The erect flower-spike is about 8 inches in height, thickly furnished with scarlet flowers and orange-coloured bracts. The plant is a native of the East Indies, and stove treatment is proper for it when making its growth, although it will stand a long sojourn in the cool conservatory during August and September, its flowering season. The best kind of soil for growing this plant is one that consists of peat two parts, and of loam and rotten dung each one part, to which a good deal of sand should be added. Propagation is best effected by division of the roots in March or April, when repotting the plant. As soon as the flowers begin to fade, remove them, and let the plant gradually ripen off, and store under the stage in a warm house for the winter. *H. T. M., Stoneligh.*

NEW INVENTION.

MINIATURE FOUNTAINS.

In countries where hot temperatures and excessive sunshine occur, the use of small water fountains in the sitting-room, is pleasant and refreshing. Not only does the spray tend to lessen the heat of the atmosphere, but it imparts some degree of moisture to same, whilst the sound of rippling water in such circumstances is most enjoyable. They are seldom used in our own country in sitting or drawing-rooms, but occasionally one may be seen in the entrance-hall, and more frequently in the conservatory. The latter structure is the most suitable place for one, and to such a house a fountain is undoubtedly an attraction.

Our attention has recently been directed to a particular kind known as the "Hot-air Motor Drawing-room Fountain," which though not absolutely new, may be unknown to some of our readers. The necessary heat is supplied by a spirit flame, enclosed in a stove, and the motor is a little expansion machine, which works smoothly and quite noiselessly. The motive power obtained is transferred to a suction and pressure-pump, which forces the water from the aquarium, into a jet as much as six feet high. The water is of course restored to the aquarium, and thus is kept in constant circulation; consequently fishes thrive in it. The water is also prevented from becoming warm by any contact with the heat from the spirit lamp.

The fountain may be kept working the whole of the day without attention, beyond supplying a little oil. The machine is made of metal castings, and stands upwards of three feet high. On the table below the octagonal glass-pannelled aquarium, space is provided for placing decorative plants. Several jets are provided, and various modifications can be made in regard to the method of providing motive power to the pump. It requires very little attention, and where a fountain is desired, may claim attention.

Like many other inventions, this one is "made in Germany," but may be procured in London.

SCOTLAND.

LECTURES ON LANDSCAPE GARDENING.

MR. HENRY E. MILNER, F.L.S., V.M.H., &c., is now engaged giving a course of five lectures, in the Botanic Gardens, Edinburgh, to gardeners and foresters. These lectures are in connection with the classes held for gardeners and foresters employed at the Botanic Gardens, which have been successfully running for some years. They were instituted by the Regius-keeper, Professor J. B. Balfour, F.R.S., &c., who has consented to the admittance of those interested in the subject of the lectures which Mr. Milner is giving. The first lecture included the Introduction, the Development of Landscape Gardening, and the Enunciation of General Principles. A good assembly was present in the Lecture Hall to receive the lecturer, who after being introduced by Professor Balfour commenced by giving a sketch of the early gardening in the East, in Chinese, and Roman gardens, down to the present time, giving the special points which the known landscape gardeners excelled in at the close. Towards the finish, Mr. Milner spoke of the utilisation of water in the beautifying of our gardens, referring also to the utility of the formal treatment of ground near the house, showing also the use of colour in promoting an idea of distance. The following lecture treats upon the subject of site, the approach, the terrace, and kitchen garden. The third deals with drainage, water, structures (steps, walks, bridges, &c.). In the fourth, the formation of the ground, and planting is considered; while the last considers the extremely large subject of Design. Other courses to follow the one now in progress are:—A course of ten lectures by Dr. A. P. Aitken on "Manures, and the Application of Chemistry to Horticulture and Forestry." Bailie Mackenzie (of the firm of Mackenzie & Moncur) gives lectures on "Horticultural Building, Heating, and Ventilation." While the "Valuation of Woods and Plantations, and the Sale of Timber" is to be taken up by Mr. D. F. Mackenzie, of Morton Hall.

[In future issues we hope to be able to publish the substance of Mr. Milner's lectures, for the benefit of our readers generally. Ed.]

THE WEEK'S WORK.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Greenhouse Rhododendrons.—The white-flowering varieties, such as R. Princess Alexandra, Countess of Sefton, Countess of Dalkeith, and Duchess of Sutherland, which are most useful for Easter decorations, may be gently forced if not now in a sufficiently advanced state, but on no account should they be unduly hastened into flower, or the blossoms will fail to develop in a proper manner, although the house in which they are forced may be kept moderately close and the air moist, and the syringe freely used to prevent the spread of thrips on the plants. Let the plants stand on spar, coal-ashes, &c., and do not let them become dry at the root at any time. Young plants of those Rhododendrons which are growing thin or mis-shapen may have the flowerless shoots pinched at the points, in order to induce break, whilst flowering shoots will break without pinching. The main stock of plants that may not be forced should be afforded a cool, well ventilated house. Young flowerless plants may now be repotted, and flowering ones after the chief burst of bloom is past. Like Ericas, they are healthiest when afforded pure fibrous peat, plenty of sand, and pots very well and carefully drained. A larger shift than 1 inch all round the ball should not be given.

Daphne indica.—This plant and its varieties and D. odora succeed under similar culture to that required by the greenhouse Rhododendrons, and they will grow with care into good large specimens. If forcing is resorted to, it must be carried out with moderation, for the reason that all Daphnes resist a close, moist atmosphere if placed in it for any length of time, and also if pushed on rapidly more harm than good will result. When Daphnes are in free growth, the house may be closed early in the afternoon, after affording the plants a good syringing. Water must be carefully applied, the happy medium being aimed at of affording neither too much nor too little water. Any of those plants which are in need of repotting may now receive attention, affording them a good drainage, and a compost that consists of fibrous loam, a large proportion of coarse silver sand, and a sprinkling of bone meal; pressing the soil firm round the roots. Any plant which has plenty of healthy roots, but has made straggling growth, may be cut hard back. The shoots will break freely soon afterwards, and in two seasons healthy flowering plants will result. Shoots that fail to flower must have their points removed just previous to the flowering of the plant, then all the shoots will start into growth at the same time.

Poinsettias.—When young shoots are used as cuttings, some of the plants should be placed in heat and well syringed, the shoots being taken when they are 3 inches long, and with a heel. Without making any more wounds insert them simply in thumbs, using a light sandy soil, putting some silver sand at the base of each. The readiest means of propagating Poinsettias is to cut the old stems and branches into two-joint lengths, and insert these in thumbs. These soon root in a close frame or case on bottom heat or without it.

Euphorbia Jacquinæflora.—Place the old plants in heat in order to induce growth, and when the shoots are 3 inches long, remove the plants into a cooler house for a few days before taking off the shoots with a sharp knife just where they issue from the old stem. Trim off the lower leaves, and insert round the sides of small pots in sandy soil, and keep close and shaded. Last year's plants that have been pruned back, if growth has commenced, may be shaken out and repotted, and afforded an intermediate-house temperature.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

The latest Vines.—The disbudding of the canes should be carried out as soon as it can be seen which of them show bunches; and the number of shoots to leave on each spur will depend upon the distance the spurs are from each other on the rod, but as a general rule a sufficient number should be left to furnish the trellis without crowding taking place when the leaves are fully developed. If the spurs are about a foot apart on each side of the rod, one shoot from each will be sufficient, preference being given to the strongest that is showing fruit, and which starts from a point near to the rod. Where spurs are further apart than 1 foot,

space may be found for two shoots from each spur, one with a bunch, and the one that is nearest the rod without one.

Syringing Vines.—Very frequent syringing in dull weather after Vines have broken causes the rotting of the shoots, but if there is a danger of red spider infesting the foliage before the flowers expand, syringe the Vines on fine days twice a week, a thorough application doing much towards clearing off the pest. The morning is the best time for syringing Vines.

Melons.—When the main shoots of the most forward plants have spread over the trellis to their allotted distance, stop them, and by so doing, strengthen the weaker lateral ones. Laterals coming out of the main stem for some distance up do not usually show any female flowers; if those near the bottom of the trellis also have no female flowers, nip them off in front of the first leaf, and the second shoots will most likely show fruit blossoms. Lateral shoots which show fruit blossoms should be pinched two leaves in front of the first blossom. Male flowers, as a rule, are plentiful enough, and in order to make sure of a good set, go over the plants every day about noon, and set any expanded fruit flowers, pinching off all the male flowers then expanded. The leaves should be left on the secondary shoots, one leaf or more, so as to get the trellis covered fairly. All young shoots that appear after this is done must be rubbed off whilst quite small. During the process of setting, the syringing of the plants should be discontinued, and the soil of the hillocks or bed allowed to become rather dry, the soil and floor of the house being damped only once a day, in the afternoon. Having obtained from three to five healthy fruits per plant, recommence the application of water whenever the condition of the soil shows it to be necessary, affording manure-water occasionally. Let a genial growing atmosphere be maintained, and ply the syringe thoroughly on the foliage on fine days, once at closing time, and at other times when needful damp the floor and surface of the bed, but do not cause excessive dampness, as that favours soft growth and the canker of the stem at the ground-level; and do not cause a check by removing a large quantity of leaves and shoots at one time. If the bine has frequent attention in stopping and thinning, there is no need to use the knife. If aphides are troublesome, fumigate or vaporise without delay. Maintain a temperature of from 65° to 75° by night, 75° on dull days, and 85° by sun-heat, and 5° higher for a short time after closing the house. Let air be admitted by the upper ventilators when the temperature has risen to 80°, and increase the amount before 85° is exceeded. In the daytime, while the plants are in flower, keep the hot-water pipes rather warm. Successional Melon plants may be planted, and seed sown.

Cucumbers.—When the last top-dressing of soil is filled with roots, another one may be added, and stopping, thinning, and securing the shoots attended to. Step-lading shoots that have grown some distance and size in order to get a sufficient number of laterals to cover the trellis without crowding it, pinching out the surplus shoots. Apply water when the soil is getting dry, and syringe and damp down several times daily. Maintain the same temperature for Cucumbers as for Melons.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorking.

Thunias.—T. Marshalli, T. Bensouae, T. Veitchiana, T. Brymeriana, T. pulchra, T. alba, and the pure white T. candidissima, are valuable, for they are distinct from most Orchids in form of flower and habit of growth. The plants are now making new growths, and no time should be lost before shaking them out of the old compost and repotting them. The practice of growing about half a dozen pseudo-bulbs, 3 inches apart in a good-size pot, is a convenient one. Make the pot half full of drainage, and cover with a layer of turfy loam, laying the grass side downwards, into which the roots will probably enter about the time the flower-buds show. Keep the young growths just below the rim of the pot, and fill up to their base with peat and moss, adding a few handfuls of crocks, and a little silver sand. Make the compost moderately firm, and tie each bulb to a neat stake, afterwards placing them in the lightest available position in the East Indian house. If the bulbs are extra long, carefully bend them over at the top, and tie them down, so that the young growths may be brought up as near to the roof-glass as pos-

sible. Water sparingly, but increase the supply when fresh roots are apparent. Immediately the flower-spikes appear, afford the plants an occasional application of weak liquid-manure.

Dendrobium spectabile.—This undoubtedly beautiful and distinct species, which has been imported of late in large numbers, is worthy of the utmost attention on the part of cultivators of Orchids, and a few hints on the management of newly-imported plants will be of service to tyros and old hands alike. On a plant being received it should be sponged to free it from dirt and insects, the decayed parts removed, and then it should be put into a pot that will suffice as regards size for one season only, the pot being nearly filled with crocks, and the plant made steady by tying the pseudo-bulbs to sticks—a very important matter. Although this species comes from a country with a very warm climate, no effort should be made to force the growth or plump-up the pseudo-bulbs at once, but everything should be gradually carried out; and for the present, the plant may be placed in a house that is moderately cool and dry, and no water afforded for a few days, after that lapse of time a small quantity of water may be poured amongst the crocks occasionally, but no wetting of the base of the pseudo-bulbs should be done, and I would not advise the damping of the plant overhead before full establishment, the pseudo-bulbs being very apt to be blackened, a state that leads to decay. Keep it shaded from strong light and the direct rays of the sun, and as soon as signs of revival are remarked, remove it to a warm shady part of the Cattleya-house, and when new roots are seen let peat and sphagnum-moss be firmly placed around it in the usual manner, and place the plant in the warmest house. After this potting, light applications of water may be made, great care being taken not to afford too much. As the plant grows at the root and top, and gains strength generally, water will be more frequently required. From my limited experience (of about two years) of this plant, it likes, when established, water to be copiously afforded the whole year, and to be well shaded from the sun's rays.

Cattleya labiata.—Freshly-imported plants require a similar kind of treatment till new roots or growths show, when repotting may be done, and the plants placed with others of the same species.

Calanthes.—The plants of the deciduous section may now be repotted, that is, as soon as the new growths are about 1½ inches long, and before young roots are made. The latter of course is the safer one, there being no chance of injury being done. Before proceeding to repot a plant, turn it out of its pot, shake off the spent soil, and shorten the dead roots to within an inch of the base; what is left will help to keep the plants steady in the compost. This may consist of good fibrous loam one half, dry cow-manure or good oak-leaf mould one fourth, finely chopped sphagnum moss and small crocks one fourth, and a moderate quantity of coarse silver sand. Clean pots should be used, the sizes and the number of bulbs in each pot being varied according to discretion. Where space is of no account, it is an advantage to grow the plants singly in pots proportioned to the sizes of the pseudo-bulbs. *Calanthes* require good drainage, crocks taking up about half the space, and upon these place a layer of turfy loam, and then fill in, shaking the soil moderately firm to within an inch of the top, and on the surface place the pseudo-bulb with enough soil added as will cover the base of the plant and no higher. Place in the best available position in the East Indian house or plant stove, but afford no water at the root for several weeks, merely damping between the pots each afternoon at closing time instead. When growth advances, the soil may be sprinkled lightly, for much water will cause the roots to go black at the points, and the new growths to damp off. As soon as the roots are seen around the sides of the pot, more water may be afforded by degrees. Most species of *Calanthes* are readily increased by taking off the old back bulbs, and inserting them in pots filled with sphagnum moss. The different varieties of *C. Regneri* that are now in full bloom may be repotted when growth recommences. Plants that are bearing seed-pods should be stood in a sunny position to ripen the latter. It is not necessary to cut off the capsules immediately they burst, for a piece of tissue paper tied loosely around them will prevent the escape of the seed. By the time the old flower-stems begin to die down the seed will be fully ripe. It may be sown upon the surface of the soil of the best rooted plants; and till it germinates, these plants should be afforded water with a very fine rose-can. When the seedlings are fairly rooted, the water needed by the old plants will

not harm them, but they must not be disturbed till the following spring. Last year's seedlings may be potted forthwith.

THE HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Peaches and Nectarines.—As soon as the petals fall, disbudding should be commenced, and completed in several operations at intervals of a week or ten days, according as the growth of the trees is rapid or slow. The practice of doing the disbudding at one operation causes much of the fruit to fall off, and is injurious in various directions. Trees recently planted should not be disbudded at all; on the contrary, they should be allowed to make all the growth they are capable of during the first few weeks, so as to favour the activity of the roots, the shoots not required for building up the foundation of a crown being stopped after the shoots have made 2 inches of growth. In disbudding replanted trees, the disbudding should not be severe on the first occasion it is practised; and on established trees the shoots at the back and front of the branches should be those first removed, rubbing them off with the hand, any young fruits found at the base of the shoot being left uninjured if it be thought desirable to retain them. It is a better practice to nip off the point of the shoot in this case, leaving the base of the shoot with the young fruit on it. If fruits have set thickly, the worst placed should first be thinned off, and the others left on the branches and shoots at 3 inches apart, always removing those that are small and weak. The points of shoots should for the present not be pinched, but this may be necessary with some of them later on, so as to avoid crowding, but the third disbudding is the best time to do this. If aphides appear at this stage, they commit havoc by creeping into the remains of the flowers that have set, and the best means to employ against them is to moisten the trees on a fine day with a syringe and then apply Tobacco-powder with an indiarubber distributor. Continue to make use of the coverings at nights and during cold windy days also, which is the surest preventative of mildew and blister, so injurious to the Peach-tree out of doors.

Apricots.—If fishing-nets are employed as a covering, let them be lifted on fine days in order to harden the foliage, putting them on again before nightfall, and continue to do this till the leaves are sufficiently large to protect the fruits from injury by frost.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Tubers of Dahlias.—Any of these not started for furnishing cuttings should be placed in gentle warmth, say 50° to 55°. Cuttings may still be taken and potted in leaf-mould and sharp sand, three to five in a 60, and plunged in bottom heat. Do not afford the cuttings much moisture, or a too humid air, or they will damp off. Pot these off singly when rooted, and grow in a warm house for a week or two before removing them to a lower temperature. The old roots should be potted and got into growth without undue haste.

Ornamental Ponds and Lakes.—The present-day taste favours the creation of artificial water in gardens, and very ornamental these become when properly placed and suitably planted about with flowering shrubs and trees, and flowering plants of low growth. For planting in the water itself, *Nymphæas*, of which there are many beautiful species and varieties, are among the best to use. Varieties which can be obtained at a nominal cost, viz., *N. alba* (the white Water lily), and *Nuphar lutea* (the yellow flowered one), *Aponogeton distachyon*, a very hardy plant that should not however be planted in water that is more than 3 feet deep; for quite shallow water, or where they are just out of the water's reach, the following species should be planted, *Caltha palustris*, *Osmonda regalis*, a very beautiful plant when established; *Eutomus umbellatus*, *Ranunculus varius*, *Saxifraga crassifolia*, the *Solidagos*, and *Typha latifolia*, the common Bulrush. On the banks there may be planted the hardy Bamboos, if possible in clumps, these being far more effective than isolated specimens. Of Bamboos the following species are suitable:—*B. Fortunei* variegata, height 2 feet; *B. Metake*, hardy, and a large grower; and *B. Simoni*, a rapid-growing variety. *Arundo Donax* is also a suitable plant for planting by the water-side; also the following, *Carex pendula*, *Elymus glauca*, *Glycerium argenteum*, planted either in clumps or isolated specimens there, or in other parts of the garden. *Eulalia zebrina*, the foliage barred with yellow, which has a telling effect, is excellent.

There are many other subjects beside those enumerated here, which are equally suitable to this style of planting in pleasure-gardens, which, if afforded sheltered positions, will give interest to a style of gardening which is too rarely seen.

Hints on Work in General.—The true spring-like weather that has followed the north-easterly gales of the previous week will have enabled the gardener to get a considerable amount of work done, and we may now anticipate chiefly favourable weather. The whole of East Kent was swept by a storm of wind and snow, accompanied with frost, which continued without ceasing up to Saturday, checking vegetation generally, and destroying much of the beauty of the spring-flowering garden, and loosening newly-planted trees and shrubs. These latter must have attention forthwith, and the soil made firm round the stems and over the roots. In securing trees and shrubs to posts and stakes, be sure to place a pad of hay, a bit of shoe-leather or cloth, between the bark and the latter. A good kind of tie made of straw and tarred string was figured in the *Gardeners' Chronicle* for November 24, 1883, p. 653.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

Globe Artichokes.—Now that the danger from frost is at an end, the litter which was placed about the plants last autumn may be removed, partially completing the work in about a week, and then afford a liberal dressing of woodashes and rotten stable manure round each stool, covering the manure with soil so as to form small mounds; dig the land between the plants with a fork, and give a mulch of fresh stable litter. When in full growth, and especially in hot, dry weather, Artichokes are benefited by copious applications of weak liquid manure. Do not stint the seedlings raised from seed this spring of rooting space, nor keep them far from the glass, as only sturdy vigorous plants will produce a supply of large heads this season.

Transplanting Seakale roots and cuttings.—Any roots that are not required for forcing, also one-year-old seedlings, may now be planted in rows 2 feet apart, and 6 inches between the roots, covering the crowns with half an inch of soil. Cuttings which were made in the winter having calloused, may also be planted in rich land, in rows 2 feet apart, and 8 inches between the cuttings. Seakale seed may now be sown rather thickly in rows, previously soaking the seeds in water for 24 hours. The drills may be drawn 18 inches apart, and 2 inches deep, and when the seedlings are up thin them out to 6 inches apart, in moist weather. Let the supplies of blanched Seakale during this and next month be kept up in accordance with requirements. At this season forcing is readily done under Seakale pots alone, if a sufficient quantity of soil be drawn up round the base so as to perfectly exclude the light; a small quantity of clean straw or dry leaves is an assistance to the blanching, if put over the crowns.

Autumn-sown Onions.—A piece of well-manured land should be prepared, on which drills 12 inches apart and 2 inches deep should be drawn for receiving the surplus of the crop. If the Onion-bed is hard, or the weather dry, afford it water, in order the better to extract the roots when drawing the plants; and having drawn a number where they stand thickly together, plant each separately with a long dibber, covering the fibrous roots, but not the bulb itself, and make the soil very firm about the roots.

General Work.—Let sticks be placed to Peas on their appearance above ground. Thin the rows of Spinach more or less according to the strength of the variety; also Turnips and Radishes, sprinkling fresh soot along the rows of those vegetables as a deterrent to birds and slugs. Red Dutch Cabbage may be planted in rich soil at 2 feet apart; and remove the remainder of crops of winter vegetables that are of no further use. Ply the draw and the Dutch-hoes freely in all parts of the garden, in order to kill weeds, and aerate the soil.

TRADE NOTICE.

THE Station Nurseries, Horsham, carried on by Mr. J. G. Jenner for the past twenty-five years, have been purchased by Mr. Riley Scott, who was for upwards of twenty-three years steward and head gardener to Miss Foster, The Holme, Regent's Park, London, and Oakover, Ticehurst, Sussex.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR APRIL.

WEDNESDAY, APRIL 6	{ Royal Caledonian Horticultural Society's Exhibition (2 days).
THURSDAY, APRIL 7	{ Linnean Society Meeting. Royal Horticultural Society of Ireland (Exhibition).
SATURDAY, APRIL 9	{ Royal Botanic Society Meeting.
MONDAY, APRIL 11	{ Bank Holiday.
TUESDAY, APRIL 12	{ Royal Horticultural Society's Committee.
SATURDAY, APRIL 16	{ Ghent Quinquennial Horticultural Exhibition, open until 24th inst.
WEDNESDAY, APRIL 20	{ York Florists' Spring Exhibition. Durham, Northumberland, and Newcastle Horticultural Society's Spring Exhibition (2 days).
THURSDAY, APRIL 21	{ Linnean Society Meeting.
SATURDAY, APRIL 23	{ Royal Botanic Society, General Meeting.
TUESDAY, APRIL 26	{ Royal Horticultural Society's Committee's Meeting.

SALES FOR THE ENSUING WEEK.

MONDAY, APRIL 4	{ Roses, Hardy Perennials, Cannas, Iris, &c., at Protheroe & Morris' Rooms.
TUESDAY, APRIL 5	{ Imported and Established Orchids, at Protheroe & Morris' Rooms.
WEDNESDAY, APRIL 6	{ Japanese Lilies, Carnations, Roses, Decorative Plants, Palms, &c., at Protheroe & Morris' Rooms. Palms from Ghent, Shrubs, Roses, Plants, Bulbs, &c., at Stevens' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—46.7°.

ACTUAL TEMPERATURES:—

LONDON.—March 30 (6 P.M.): Max., 55°; Min., 37°.

PROVINCES.—March 30 (6 P.M.): Max., 46°, Scilly;

Min., 39°, Aberdeen.

Variable; rain, sleet, wind, becoming brighter and more settled.

Carnation Disease.

WE very frequently receive leaves of Carnations marked with small translucent spots, and presenting the characters of leaves supposed, with more or less truth, to be due to bacteria. Some of our experts, to whom such leaves have been transmitted, have considered the spots to be the initial stage of some fungus. Dr. ARTHUR, in a paper originally read before the American Association for the Advancement of Science, 1889, came to the conclusion that the disease is caused by "parasitic bacteria entering the plant from the air through the stomata, or occasionally through the punctures of aphides."

The name Bacteriosis has accordingly been given to this disease, but more recent researches render it doubtful if the bacteria have anything to do with it. Mr. ALBERT WOODS, Assistant-Chief in the Division of Vegetable Physiology and Pathology at the United States Department of Agriculture at Washington has re-investigated the matter, and has published the results of his labours in the *Centralblatt für Bakteriologie, Parasitenkunde, und Infektionskrankheiten*, 111 Band, 1897. He tells us his method of research, which it would be tedious to describe here, and which can only be carried

out in a properly-equipped laboratory. The general result is, that the appearances in question are due to the attacks of aphides or thrips, and that the bacteria, if present at all, are not the causes of the disease. It is, however, better to give the author's conclusions in his own words:—

Summarising, it may be said that:—

1. The disease of Carnations characterised by the symptoms already described and generally known as "bacteriosis," is wide-spread and destructive.

trouble, is shown by the fact that the injuries produced are not accompanied in the earlier stages by fungi or bacteria. The aphides, therefore, cannot be looked upon simply as carriers of some fungus or germ.*

7. Injuries similar in many respects to those produced by aphides, also result from the attacks of thrips, an insect nearly always present on Carnations under glass, although generally overlooked by growers.

8. The Carnation is a plant readily influenced by the conditions under which it is grown, and as a result the reaction to the injuries of the aphides, and



FIG. 76.—EULOPHIELLA PEETERSIANA: SHOWING HABIT. (SEE P. 201.)

2. In the earlier stages of the disease neither fungi nor bacteria are present, so far as can be determined by the most careful microscopic studies and bacteriological investigations.

3. As the disease advances, various organisms may appear, but their presence is not constant.

4. Infection experiments with such organisms, carried on under rigid bacteriological conditions, resulted negatively in every case.

5. A disease having all the characteristic symptoms of "bacteriosis," excepting the presence of a bacterium, is produced by the puncture of aphides, as was repeatedly proved by the colonisation of these insects on the plants.

6. That the aphides alone are responsible for the

the susceptibility to their attacks, not only vary with varieties, but with individuals of the same variety. Plants, therefore, grown under improper conditions will show more of the characteristic injuries from a given number of aphid punctures than those where all the conditions have been favourable for growth.

9. Proper selection and propagation of stock, furnishing soil, moisture, light, and air best adapted to healthy and vigorous growth, and keeping down to a minimum the number of aphides and thrips, will enable the grower to successfully combat the disease." August 15, 1897.

* See M. Büsgen, Der Honigtau. Biologische Studien an Pflanzen und Pflanzenthiere. Bes. Abdr., a.d., Jen. Zeitschrift für Naturwissenschaft. Bd. xxv., N. F., Bd. xviii.



EULOPHIELLA PEETERSIANA, FLOWERING FOR THE FIRST TIME IN EUROPE IN THE GARDEN OF SIR TREVOR LAWRENCE, BART.

(Portion of flower-spike, natural size. Flowers deep bright purple; lip white, blotched with purple. See p. 301.)

EULOPHIELLA PEETERSIANA (Supplementary woodcut).—Under this name, Dr. KRÄNZLIN, of Berlin, described a highly remarkable Orchid in our columns, March 20, 1897, p. 182; and now, a twelvemonth later, we have the satisfaction of publishing a representation of the flowers. It is to Sir TREVOR LAWRENCE, Bart., that we owe this privilege, and whilst thanking him we may also congratulate him on his success, and pass a compliment to his Orchid grower, Mr. WHITE. The stem, in Sir TREVOR's plant, curves and twines among the branches of trees like a snake, but does not show the very large fusiform bulb described by Dr. KRÄNZLIN. The leaves are from 2 feet 5 inches to 3 feet 10 inches in length. The racemose flowers are borne on a scape, which grows more than a yard in height before the flowers are produced. Each flower measures about $3\frac{1}{2}$ inches across, the sepals being bright purple with a very intense purple blotch at the tips; the petals are purple, not blotched. The lip is white with a broad purple outer border, with four erect vertical crests. The throat is white streaked with orange. Mr. WORTHINGTON SMITH's drawing will furnish the details required by the grower; whilst for the botanical characteristics, the reader is referred to Dr. KRÄNZLIN's description above cited.

LINNEAN SOCIETY.—On the occasion of the evening meeting, Thursday, April 7, 1898, at 8 P.M., the following papers will be read:—I. "On the Brain of the Edentata, including Chlamydothorus," by Dr. ELLIOTT SMITH; and II. "Preliminary Account of some New Zealand Actiniaria," by Mr. H. FARQUHAR.

THE ROYAL GARDENERS' ORPHAN FUND.—We are reminded that the Annual Festival Dinner of this most deserving charity will take place on Wednesday, April 20, at the Hôtel Métropole, under the presidency of C. E. KEYSER, Esq., of Aldermaston Court, Reading, and late of Stanmore. Mr. KEYSER is so well known as a patron of horticulture, that we hope there will be a large number of gardeners present to give Mr. KEYSER a cordial reception.

FOR THE GARDENERS' ORPHAN FUND.—At a meeting of the committee, held on the 25th ult., amongst the donations announced was a handsome gold engagement-ring from a "Lover of flowers," with a request "that it be sold for the benefit of the Fund." Here is an opportunity for some enterprising youth!

APOGAMY, AND THE DEVELOPMENT OF SPORANGIA UPON FERN PROTHALLI.—On March 3, Mr. W. K. LANG communicated to the Royal Society a paper on "Apogamy, and the Development of Sporangia upon Fern prothalli," detailing the results obtained from a series of cultures of ten species of Ferns, the prothalli of which were grown for more than two years. The conditions of cultivation differed from those under which prothalli usually occur in nature, in that fertilisation was prevented by avoiding watering from above; the prothalli were also exposed to direct sunlight. To these causes the results, which in the main agree for the various species, may be ascribed. The most important were the change in form and structure of the prothallus to a fleshy cylindrical process, which sometimes proceeded from the apical region, sometimes from the under-surface just behind the latter; the development of conical projections around or in place of archegonia, and the occurrence of more or less numerous cases of apogamy in every one of the species. The latter phenomenon was manifested by the presence of tracheides in the tissue of the prothallus, by the development of isolated members of the sporophyte upon it, and in every case but one, of complete vegetative buds. On prothalli of *Scolopendrium vulgare* and *Nephrodium dilatatum*, sporangia, which sometimes attained almost perfect development, were found. In conclusion, the bearing of the results on the nature of the alternation of generations seen in archegoniate plants is considered, and a provisional hypothesis is suggested to explain how the definite alternation of sexual and asexual forms might have originated by modification of individuals of the ancestral algal organisms under the conditions to which they would presumably have

been exposed on their assumption of a terrestrial mode of life. *Nature*, March 24.

"THE HOUSE."—The magazine known as *The House*, and described as being an "artistic monthly for the home," continues to keep up the interest which the appearance of its first number called forth. In addition to such housewifely subjects as furniture and artistic needlework, the magazine deals also with what are known as "home arts." Prominent among these is "Tarsia," a simple form of marquetry executed in natural woods, and worth mention as being novel in idea and satisfactory in execution.

TAR-WATER FOR LEAF-MINERS.—Mr. KIRK, whose death we had recently to deplore, reported in the New Zealand Biologists' Report that tar-water is an excellent remedy for the grubs of a fly which disfigures the leaves of *Cinéraires*, *Chrysanthemums*, *Marguerites*, &c. To prepare the tar-water, boil half a gallon of coal-tar in one gallon of water, let it stand to cool, and dilute with fifty gallons of water. The tar-water is lightly sprayed in fine spray over the leaves. The glass and stages of the house may also be sprayed.

"DIJON VITICOLE AND HORTICOLE."—Under this title we have received, in one pamphlet, the first and second numbers of a new publication, edited by Mr. T. VUILLERMET. It is intended to be a popular illustrated magazine of horticulture and Vine-culture, the specimens before us including papers on such subjects as, remedies for black-rot, street-planting of fruit-trees, good varieties of Potato, &c. The beginning is satisfactory, so we will hope that deserved success will ensue.

ENGELMANN CAÑON, COLORADO.—*Mechanics' Monthly* for March gives the following account of the origin of a name. We there read that: "Frequent occasions have been taken to point out how unreliable are a large portion of statements that go on record as the 'truths of history.'" Even in our own times, statements are given for facts which those living can controvert. Just before us, for the first time, appears a pamphlet by CHARLES A. WHITE, entitled *Memoir of Geo. Engelmann*. On p. 19 we read, "Dr. PARRY, like other friends of Dr. ENGELMANN, delighted to do him honour. While engaged in his earlier explorations, he gave Dr. ENGELMANN's name to the picturesque cañon through which now passes the cogwheel railroad from Manitou to the summit of Pike's Peak, in Colorado." It so happens that Dr. PARRY knew nothing of this cañon, nor did any other man up to 1871. It was marked on all the maps as the "Unknown Cañon." The first man to surmount the difficulties of its exploration was Prof. THOMAS MEEHAN, who alone succeeded in getting through. Complimented by the surveyors, he was told by General CAMERON, the head of the surveying party, that by virtue of being the original explorer he might give a name to the cañon. On this suggestion the "Unknown" was erased from the map, and "Engelmann" substituted. Dr. ENGELMANN's name occurred to Mr. MEEHAN from the beautiful specimens of *Abies concolor*, a species which prevailed there—and Dr. ENGELMANN's labours on the Coniferae naturally suggested it.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held in the Lord Mayor's Parlour, at the Town Hall, Manchester, on Wednesday, April 20, 1898, commencing at 11 A.M., when several papers will be read and discussed. Members intending to take part in the visit to Manchester, or to attend the dinner, or one of the excursions, should, if they have not done so, return the fly-leaf of the Circular already sent to them not later than April 13, and as much earlier as possible. Special dining-car carriages will be attached to the 5.30 P.M. train leaving the Great Northern Station, King's Cross, on the evening of Tuesday, April 19, in which seats will be retained for those members who intimate to the Secretary, before that date, their intention of dining *en route*. Notice is given that the Institution will be closed from Thursday evening, April 7, to Wednesday morning, April 13.

RATING OF GLASS-HOUSES: *Smith and Others v. Richmond*.—We are glad to learn that the Market-Gardeners', Nurserymen, and Farmers' Association—who, it will be remembered, successfully fought out the case of *Purser v. Worthing Local Board*—are moving in this important case on behalf of the trade, with a view to an appeal to the House of Lords.

CAPE FRUIT.—The ship *Gascon* of the Union line has brought over 298 boxes of Grapes, consigned to Mr. HUDSON. The whole being described to us as "wet," and the reason given for this condition is that the fruit was gathered during rainy weather and packed in damp state. It is a pity that this should have been allowed, and would appear to indicate either little commercial ability or common sense in the exporter.

WRECK OF THE "CHINA" STEAMSHIP.—Whilst our last week's issue was being printed, in which it was announced that the P. and O.'s ship *China*, from Australia, was *en route*, and due here on the 11th inst., that ship had got on the rocks at Perim Island, and it was announced in the daily press that she was likely to become a total wreck. The P. and O. Company has surely the sympathy of our readers, so enterprising have they been in the far East and at the Antipodes; and as fruit carriers their ships had obtained distinction for the excellent condition in which the fruit cargoes entrusted to them were delivered. The *China* had on board some 16,000 boxes of Apples, &c., from Tasmania and other Australian ports, and it is not supposed to be likely that any of these can be salvaged, and the owners of the vessel express similar fears. Whether the shippers will venture to make good the loss may to some extent depend on the brokers here, and on the demands at home. However that may be, the general expressions of regret show how much Tasmanian Apples have become home necessities.

THE MILD WINTER AT TORQUAY.—The high mean temperature during the two autumn months, October and November, of 1897, and during the winter of months December, January, and February last, was quite extraordinary. The mean temperature of each of these months, and the excess or accumulation of heat degrees above the average of twenty-two years during this period are:—

October, 1897, the mean temperature was 54.2°, or 3.1° above the average of 22 years.

November, 1897, the mean temperature was 49.4°, or 2.3° above the average of 22 years.

December, 1897, the mean temperature was 46°, or 3.1° above the average of 22 years.

January, 1898, the mean temperature was 47.1°, or 5.6° above the average of 22 years.

February, 1898, the mean temperature was 44.1°, or 0.7° above the average of 22 years.

The mean temperature of the five months was 48.2°, or 14.8° of accumulated heat degrees above the average of 22 years' observations at Torquay.

Western Morning News, March 16.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—A special meeting of members of this Association, which was largely attended, was held in the Abbey Hall, Reading, on Monday evening, to help forward the objects of the Gardeners' Royal Benevolent Institution. Mr. HARRY J. VEITCH and Mr. GEORGE J. INGRAM attended at the invitation of Mr. ARTHUR W. SUTTON, and addressed the meeting, explaining the objects and the working of this truly admirable Institution. The chair was taken by the President, Mr. CHARLES B. STEVENS.

GERMANY.

WILHELMSHÖHE.

No one visiting North Germany should miss the opportunity of visiting Wilhelmsöhe, near Cassel. It is one of the most beautiful spots in Germany, and one that appeals very much to an English eye, with its fine park, and large open lawns. Above all,

however, when one has the good fortune to be able to time one's visit for a day when the cascades roll down the mountain side, and the fountains are playing, it is beautiful indeed.

Since the year 1866, when Cassel and Hanover lost their independence and were united to Prussia, it has been a summer residence of the German emperors, and was assigned to the captured Emperor, Napoleon III., in 1870 after the surrender at Sedan, with its rather dull old castle as domicile, until about the end of the war in 1871, when he came over to Chislehurst, where he died a few years later.

What I should, however, most especially like to draw attention to at Wilhelmsöhe, is the bedding in front of the castle, which is most beautiful, a dwarf variety of Begonia, of a most lovely rosy pink called Beg. Bavaria being very extensively used, and giving the whole a charm seldom seen. I should very much like to say at a later date a few words more about this pretty Begonia. Then the collection of Darlingtonias and Sarracenias, in the conservatories, although not to everyone's taste, and many other old half-forgotten favourites, are very interesting. In the absence of Herr Hofgartner Fintelmann, who was away at Homburg, decorating on account of the presence of the Imperial and Royal personages at the manoeuvres near Frankfurt-on-Maive and Homburg, I had the pleasure of being shown round by the Chief-Assistant, Mr. Paul Böhme, and was really surprised at the beauty of the double tuberous Begonias cultivated in pots here. I must admit that they were equal to the strains cultivated by Mr. Wihl. Pfitzer in Stuttgart, who is generally considered to be the best grower and hybridiser of these plants in Germany.

Another beautiful old favourite, which however, in these days of hurry and worry, is too slow in growth and propagation for most people, is *Witsenia corymbosa* (syn. *Nivenia stylosa*), a native of the Cape of Good Hope. It has, from a distance, the appearance of being a dwarf Palm, after the manner of the *Chamærops humilis*, and produces a great number of small star-like flowers of a lovely azure-blue. It is seldom without a few flowers; its main flowering period is, however, during the later summer months, until late into the autumn, during which period it is simply covered with its small but beautiful flowers.

What one misses at Wilhelmsöhe, where such ample opportunity is afforded for displaying their many beauties, are the newer dwarf and large-large-flowering Cannas. I only saw one or two old-fashioned, closely-planted groups of the rather ancient small-flowering varieties, with large foliage. As a lover of Cannas, I should have liked to have seen them done more justice to here.

Planted out in lawns singly, or in parties of ten, twenty, or more, as the position and circumstances prescribe, but in such a way that each plant has plenty of room to develop and show its own peculiar beauties, the effect produced is much more artistic and beautiful than when buddled together in a mass as is here the case. Perhaps another time we may find them better represented, especially as there are among the novelties of the last few years several sorts which will stand almost any weather, rain or heat, and yet look smiling. And I think we may hope for more improvement in this respect. In Stuttgart, the Canna city of Germany, especially, much care and attention is given to their hybridisation and selection on these lines, as well as in the size of their flowers and pureness of colour. However, to turn back to Wilhelmsöhe, my closing remark is, "Do not omit to visit it another time, for it is a place worth going a few miles out of one's way to see." *H. R. W., Stuttgart.*

ST. ANNE'S, CLONTARF, Co. DUBLIN.

THIS seat of Lord Ardilaun is beautifully situated just outside Dublin, and commands beautiful views of the lovely bay. The electric-tram takes you almost to the lodge-gates. When once within the park, there are signs of a well-kept estate; the drives are good, there are grand trees, and everything is in neat order. Passing up the drive I noticed

the stables, a splendid pile in red brick. A little farther on, the mansion appeared, and at first sight it does not strike one as very imposing; but on closer inspection it proved to be a splendidly-built house of Portland-stone. On this side it is surrounded by broad stretches of turf dotted here and there with groups of fine trees, underneath which are planted thousands upon thousands of Snowdrops, Crocus, Tulips, and Narcissus of all the better, as well as the common kinds.

Passing on to the left, I was soon in the enclosed garden, at the entrance to which I noticed a house, that I was informed was once the gardener's residence, but is now occupied by the young men, by his lordship's orders, and splendidly they are housed.

In the glasshouses there is at once evidence of good cultivation in a fine batch of white Cyclamen, carrying hundreds of blooms; and on the other side of this house was a batch of *Freesia refracta alba* just coming into flower, and smothered with strong erect flower-spikes. These, and Violets and Carnations, are favourites of her ladyship's, and are therefore grown in quantity. I next noticed a large house formerly used as an orangery, but now used for the growth of tropical plants. The fine Palms, Ferns, &c., interspersed with rockwork and winding stone paths, are very effective. I saw a few of the old Orange-trees cut back and tubbed; but I was more interested in two very fine clumps of *Papyrus antiquorum*. Never having previously seen this plant, its value in winter gardens, &c., with its Cyperus-like heads, carried up to a height of from 10 to 20 feet, greatly impressed me. It is also very useful in a cut state for large vases.

There were great quantities of Violets in pots, all of them first-rate plants in capital health. Mr. Campbell, the gardener, has evidently found out what they require, and gives it to them.

Tea Roses, Carnations, Primulas, &c., Orchids, including some of the rarer varieties, all appeared healthy and well cultivated. In a range of vineries some good Colmar Grapes were still hanging.

I next noticed a very pretty grotto fernery, and a very fine piece of the Killarney Fern (now becoming very rare in Ireland), which was gathered by Mr. Campbell himself.

There are two kitchen gardens, and this one near the house is devoted largely to the growth of Carnations, herbaceous, and alpine plants. On the outer walls were Ivies, Jasmines, Forsythias, Garrya, and here and elsewhere very fine trees of the beautifully-scented *Chimonanthus*, or *Calycanthus fragrans*, literally smothered with flowers. The other garden, $\frac{1}{2}$ mile away, provides the fruit and vegetables.

We next visited the Glen, a most picturesque feature, extending nearly the whole length of the grounds, now made very fine with rockwork, ornamental water, &c., and a stream traverses the whole length. At one time, Mr. Campbell informed me, the tide came quite up to this spot. Every bank or nook is occupied by some interesting plant or bulb, and seen even in the winter it was an agreeable sight. Passing down the Glen, one sees a very fine avenue of Evergreen Oak, the favourite tree of Lord Ardilaun, and therefore grown and planted all over the estate in thousands.

We next visited a summer or tea-house, overlooking a beautiful piece of water, in and around which grow choice aquatics and bog-plants.

The rock and alpine gardens near the house are sheltered by very fine Yew hedges. These plants had just been re-arranged, replanted, and re-labelled. Here was a grand bed of the scented *Lippia* (*Aloysia citriodora*); the plants were 5 or 6 feet high, and quite hardy. Also grand clumps of hybrid Anemones, of which Mr. Campbell has been so successful a raiser.

There is a fine Rose-house near the house; also a large conservatory, in which were two very fine *Dicksonias*, the side stages in this house being hidden by an invention of her ladyship's, in which was planted *Selaginella*.

I understood Mr. Campbell to say that in the centre of the mansion there is a winter-garden filled with Palms, &c., the effect of which from the various rooms is grand. *F. H.*

TREES AND SHRUBS.

A DANGEROUS DISEASE OF THE WEYMOUTH PINE.

THE Weymouth Pine (*Pinus strobus*), though a useful timber-tree, is in this country most appreciated for the pleasant variation its graceful form and foliage give to our parks and other collections of trees. Unfortunately, reports are becoming frequent of a disease fatal to the beauty, if not to the very existence, of this useful Pine. It is the more necessary to direct attention to this, because the disease is clearly being distributed from a part of Germany whence we import nursery-stock. The disease has made itself evident over the greater part of Germany, Denmark, &c., but in the north-east of Germany it has assumed the nature of an epidemic. A park in Bremen is reported on good authority to have 30 per cent. of the Weymouth Pines more or less destroyed; in a large nursery in Westphalia near the Dutch frontier the epidemic became so severe that the stock was destroyed, and this Pine for the present is left out of cultivation; round Hamburg the disease is common in many nurseries; and a supply of Weymouth Pines, taken from a nursery in Holstein to replenish a forest near Lake Constance, had to be removed and burned in less than two years.

The disease is caused by a rust (*Peridermium strobili*), allied to a well-known rust (*P. pini*) on Scots Pine and other Pines; it is, however, a distinct species, as far as we know not contagious to any of our common Pines. The symptoms consist of a swelling on twigs or branches, frequently just under a branch-whorl. The swelling soon becomes the seat of a crop of very distinct blister-like out-growths, with a yellowish to golden colour; these are the spore-producing organs of the fungus, which has long ere this established itself in and under the bark, so that in course of time the twigs dry up, the needles drop off, and no new growth follows. Fortunately, the spores produced are not able to directly attack other Weymouth Pines, for, like many of its allies, the fungus requires a sojourn in a new plant in order to complete its life-history. This new host is found in Black Currant, Gooseberry, and other species of *Ribes*. The fungus is also dangerous to the fruit-bushes, but cannot yet be called an epidemic. It attacks leaves only, appearing in June as a yellow rusty coating, which is followed by a number of brown hair-like out-growths. This is the fungus-form known as *Cronartium ribicolum*. The Weymouth Pines become infected from the Currant-bushes, hence, probably, the reason why nurseries have become the sources of distributing the diseased trees.

Neither of the forms of the rust are common in this country—in fact, as far as we know, they are rare; nor is the Weymouth Pine attacked by this disease in North America, its native country. Destruction of diseased material is the only reliable remedy as yet. If, however, those desirous of planting are careful in selecting a healthy source, we need never in this country be serious losers by either the Weymouth Pine or the Currant-disease. In case of doubt as to diseased specimens, these might be forwarded to the Editor of the *Gardeners' Chronicle*. *William G. Smith, Yorkshire College, Leeds.*

AMERICAN NOTES.

NOVA SCOTIA APPLES.

PRESIDENT J. W. BIGELOW, of the Nova Scotia Fruit Growers' Association, in his annual address, spoke of the unusually short crop of Apples in 1897, and compared it with the production in previous years. He gave the following figures as representing the annual exports to London since 1890:—

1890, shipped ...	53,267 barrels.
1891 " " " "	89,199 "
1892 " " " "	116,725 "
1893 " " " "	25,058 "
1894 " " " "	254,410 "
1895 " " " "	155,955 "
1896 " " " "	409,473 "
1897 " " " "	85,000 "

These figures he estimates to represent about two thirds of the entire Apple-crop of Nova Scotia.

PREVENTION OF GOOSEBERRY MILDEW.

The English varieties of Gooseberries are hardly ever grown in America, on account of their extreme liability to the attacks of mildew. In their place numerous varieties, derived from indigenous American species, have been substituted. There is, however, a constant endeavour to grow the English varieties; and in this work the repression of the mildew is the chief problem. Native varieties are also sometimes attacked, so that there is always a lively interest in every new bit of information

potassium sulphide, the best solution costs about one-fifth of 1 cent for each plant treated seven times.

"GARDEN MAKING."

This is the title of Professor Bailey's latest book, now just fresh from the Macmillan Company's press. It is a handy manual of 411 pages, with an excellent index. It is lavishly illustrated, and well printed, excepting a few oversights on the part of the proof-reader. The general plan of the work seems to be to give "suggestions for the utilising of home-

Garden-making comes in the *Garden Craft* series, which already includes the *Rule Book*, the *Nursery Book*, *Plant Breeding*, the *Forcing Book*, and for which the *Pruning Book* will soon be ready. The series, as a whole presents a very convenient set of hand-books, easy of reference, and infinitely useful to any one who has not already learned everything there is to know.

NOTES ON SOME AMERICAN SPECIES OF PRUNUS.

Hitherto, I have spoken in these columns of the richness of our native Plum flora in America. The following native species have been considered worthy of some degree of cultivation:—*P. americana*, *P. americana nigra* (*P. nigra*, Ait.), *P. angustifolia* (*P. Chicasa*, Michx.), *P. hortulana*, *P. alleghasiensis*, *P. subcordata*, *P. umbellata*, *P. maritima*, *P. Watsoni*, *P. gracilis*, and possibly *P. rivularis*. Besides these we have several groups of native hybrids like the Miur group of *P. hortulana*. In fact, Professor Bailey, who created the species *P. hortulana*, has more recently decided that they are all hybrids of *P. americana* and *P. angustifolia*, and this view seems likely to be generally accepted.

Botanists have had some trouble in reaching an agreement as to the standing of Aiton's *P. nigra*. Torrey and Gray consolidated it with Marshall's *P. americana*—a step fully justified by Marshall's original description. Bailey has followed this plan. Sargent, on the other hand, in *Sylva of North America*, regards these as two distinct species, and uses Aiton's name, *P. nigra*. For reasons fully set forth elsewhere, I have thought it best to make *P. nigra* a botanical variety of Marshall's species, and have called it *P. americana nigra*. The species *P. Watsoni*, erected by Sargent in 1892, has recently been the subject of special study on my part. It constitutes a very interesting group of western dwarf Plums, growing mostly on sand dunes along river banks. It is very difficult to distinguish this species from *P. angustifolia*, and it is quite possible that we may have to recombine the two. *P. rivularis* was erected by Scheele (Germany) from specimens collected in southwest Texas; but from the meagre evidence now at hand, I somewhat doubt the existence of any such species. The specimens collected by Lindheimer, and made the foundation of *P. rivularis* by Scheele, may very possibly have been some hybrid offshoot or vagary of the *hortulana* group, for such anomalous forms are found all through the lower Mississippi valley. *F. A. Waugh*.

HOME CORRESPONDENCE.

PLANTS UNDER TREES OR NATURALISATION.—

This topic is often ventilated but rather inadequately and differing as to choice of subjects, and as a rule I see small evergreens recommended. I have tried effects for years, but have never found anything to rival *Convallaria Polygonatum* (Solomon's Seal), the graceful arches of this plant, $1\frac{1}{2}$ to $2\frac{1}{2}$ feet high, enhanced at time of flowering by its pretty although small bells, is unique—in such spots—from the extraordinary effective aspect, an effect intensified by the extreme contrast to everything else possessed by this plant, which under almost all other surroundings falls comparatively flat on observers. Of course it should be naturalised, and two or three dozen or more of these handsome arches form a more or less compact mass in three or more different irregularly-formed stations under some large tree, with less number under smaller trees. If placed on masses of low rooteries, with the roots facing the spectator, and partly Ivy-covered, with the central parts filled in with soil, to form stations for Solomon's Seal, the effect is superb. The plant, if grown in the shade, cannot be killed by neglect in watering in such a situation, and its strong tubers may rather require thinning in years to come. I should like to see this plant covering stretches in woodland in the midst of the brown-tinted fallen Beech leaves, being yet another contrast of colour. In a like position another most charming effect would be produced by the Oak Fern, *Polypodium Dryopteris*, some oasis of which in the browned leaves have a charming effect. If this be joined in similar naturalised style by the one finer variety of *Equisetum* (Horsetail), I am convinced that few pictures would be more delightful in naturalisation. Going further afield, without however moving outside the strictly appropriate, we have for a

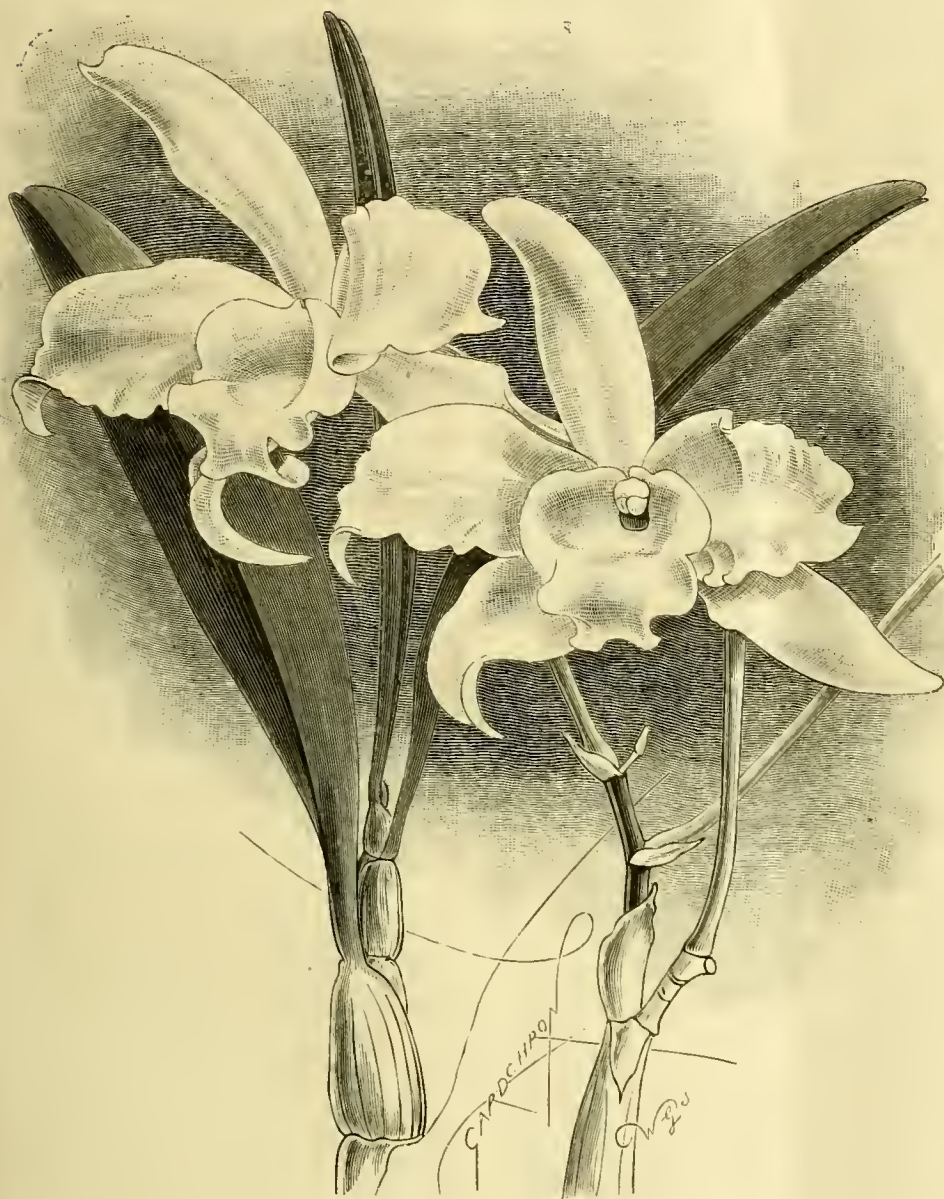


FIG. 77.—*DENDROBIUM NOBILE ASHWORTHIANUM*.

(A pure albino shown by E. Ashworth, Esq., at the meeting of the Royal Horticultural Society on March 22, 1898. (See our Report in the issue for March 26.)

touching the treatment of this malady. Long continued experiments at Geneva, New York, indicate the superiority of potassium sulphide for this purpose. It is dissolved in water at the rate of 1 oz. to 2 or 3 gallons, and applied to the bushes early with a spray pump. Bushes thus sprayed with the potassium sulphide solution showed 5 per cent. of mildewed fruit; those similarly treated with Bordeaux Mixture showed 37.4 per cent.; while untreated plants showed 57.7 to 78.7 per cent. of the fruit damaged by mildew. At 18 cents a pound for

grounds," whether for ornamental or purely useful ends. There are chapters on fruit-growing and on vegetable gardening, giving advice for carrying on such work in a small way; but the author's best energy is plainly given to that part which deals with the ornamental treatment of the home-grounds. On this subject he has many happy and pungent suggestions to offer, so that it is hardly unfair to characterise the book as a pleasant text for the amateur landscape-gardener, for the man who attends his own farmyard, or city lot, or suburban place.

superior effect. *Cyclamen hederifolium album* (avoid rubrum) with its marvellous picture-foliage which would also look well in the green turf under trees. Another most chaste treasure, perhaps the extreme perfection in elegant simplicity of beauty in plants, is *Trillium grandiflorum*, a form of milky-white tint, not excelled by any other flower whatever. One or more dozen roots of this should be planted six inches apart in irregular clusters, when in a few years time, the most lovely mass will attract its owner daily to the spot while in flower in April and May. All formality and regularity must be eschewed in arranging these plants, so as to produce a natural effect. The low-growing, remarkably-coloured foliage of *Erythronium* (Dog's-tooth Violet), with its neatly-formed flowers of various tints (rose or flesh and lilac predominating, with one yellow), would be another acquisition in half-shade near the edge of the wood or tree with morning sun, and should be planted promptly on lifting in September. No less pleasing is the *Dodecatheon integrifolium*, and other darkest varieties, with its coquettish, miniature, *Cyclamen*-like bloom, in clusters 6 inches high, as the prettiest possible innovation. Towards the yet more sunny verges of wood and copse, the naturalisation of *Anemone hepatica*, especially the blue but also the white variety of the former, are equally opportune, with the well-known *Hepaticas* in three tints, rose, blue, and white, to be planted in wide clusters, in separate colours, the large blue variety (*angulosa*) being especially effective. *Hyacinthus botryoides*, blue, and also the white variety, would be equally gems, planted in profusion, and are very cheap. A little later in flower are several rose-coloured varieties of *Oxalis*, keeping in bloom for months. A departure in habit, but a distinct success in outskirts of woods, both sunny and shady, is the beautiful *Tropeolum speciosum*, to be allowed to trail its light tendrils on any shrubs or low trees. *Scilla sibirica* in quantity, planted near and among *Primroses* and *Snowdrops* would in such situations be the earliest appropriate harbingers of spring. All these plants are eminently adapted for naturalisation, and better by far than most others so-called, but without any real attributes. In all such attempts at naturalisation, planting singly or in pairs should be strictly avoided, as the aim should be to provide irregular clusters of 1 to 3 feet across or larger, in accordance with the environment. Nobody ever objects to Lily of the Valley morning, noon, and night, and certainly masses of it would be delightful in such surroundings as above described. In all further appropriate places I should accumulate *Honeysuckle*. H. H. R., Forest Hill.

ROYAL GEORGE APPLE.—Reading the various notes that have appeared in the columns of the *Gardeners' Chronicle* recently respecting this little-known though old Apple, I was induced to look up the work of that esteemed old pomologist, the late John Rogers, of Red Lodge Nursery, South ampton, published in 1834, entitled the *Fruit Cultivator*. In that I found, amidst a wealth of reference to other Apples, the statement that "Royal George was of Irish extraction, coming into season from November to February. It was introduced into England by Sir Evan Nepean, and was propagated by the author, who succeeded in getting fruits the third year from grafting." He describes the fruits as "above middle size, somewhat flattened at each end, stalk short, eye large and prominent, general colour light yellow, dashed with red. The flesh is firm, and full of juice of a peculiar rich flavour, and may be used as dessert or kitchen. The tree resembles the Ribston Pippin in habit, but of more vigorous growth. It is an orchard tree of the first class, and well worth cultivation." This is the testimony of a man who, then of great age, had been a cultivator of fruits for fifty years, so that his statement merits the highest respect. Perhaps Clarke's Seedling, alleged to be synonymous with Royal George, is but a natural seedling from it, and possibly a reproduction. Kirke's Scarlet Admirable is described by Rogers as not a first-rate bearer. Now, Gascoyne's Scarlet Seedling is a great bearer, and, so far as my recollection goes, is a much deeper-coloured fruit than Scarlet Admirable. I had rather regarded the latter and the rich-coloured Hollandbury as very much alike. However, both are practically displaced now by free bearers. A. D.

CAROLINE TESTOUT, AND OTHER ROSES.—The Rev. Dr. Williamson in his notice of Garden Roses in a recent issue of the *Gardeners' Chronicle* falls into what I regard as a popular error in describing Caroline Testout as a "variation" of La France. That it is a Rose of the same type I do not contest, but I feel

sure it should be regarded as what, for want of a better term, may be called a "direct" hybrid, i.e. a seedling from a Tea impregnated with the pollen of some H.P. [!]. There are in existence, I believe, three undoubted variations, not counting the climbing form, viz. Duchess of Albany, Augustine Guinoisseau, and Madame Angélique Veysset (worthless); but Denmark, I think, should be placed in the same category as Caroline Testout. "The verdict of the Royal Horticultural Society" respecting these Roses is undoubtedly a correct one. It would be interesting to know the true origin of La France, but that probably will remain for ever in obscurity. Can any one point to a veritable seedling from this Rose? I believe it has been stated that it is the mother of Mrs. W. J. Grant, and if the Messrs. Dickson state that it is so, I for one will not question the assertion. A fact worth recording, perhaps, about Caroline Testout is, that in Australia it sets and matures naturally heavy crops of hips, whereas La France has none; it is also the grandest pink Rose in cultivation there, though we are promised shortly a novelty to supersede it. Deductions from analogy are apt to be very misleading. My father once sent me at Sydney a seedling from Baroness Rothschild x Mme. Berard, which was, to all intents and purposes, a dwarf-growing form of the latter, and when in Australia I raised a seedling from President x Village Maid, which had nothing in the appearance of wood, foliage, growth, or thorn to distinguish it from a true Gallica, and it flowered only once a year; the petals, however, were not striped. My experience of Penzance Briars is limited; but what struck me most in the few I had to deal with was the predominance of the female influence, due, I suppose, to the conditions under which the seed-bearing plants were grown; or is it that the male influence is not very potent on the Sweet Briar? To those who merely buy, propagate, or grow Roses, these details may be considered as quite unimportant; but to the few who attempt to raise new varieties by cross-fertilisation, they may be worth considering. That Madame Charles has superseded Madame Falcot in this country will, I expect, be called in question by many; it has undoubtedly done so in Australia, but though sent out more than thirty years ago, I doubt if it is so generally known or esteemed here as Madame Falcot, which is not a great deal older. C. Bennett, Surbiton, March 21.

SPARROWS AND CROCUSES.—The ways of that little depredator the sparrow are unaccountable, and it requires Mr. Grant Allen, who seems to understand all that passes in the minds of birds and insects, to explain them. I quite agree with Dr. Bonavia in mourning over the losses he has sustained with his Crocuses. I grow, considering my garden is small, a large quantity of yellow Crocus; for years I had to deplore the utter destruction of my blooms. It seemed to be a source of much enjoyment to the sparrow to pick them to pieces and leave the petals on the ground, for they did not seem to eat any, and I could only attribute this destruction to wanton mischief; but strange to say, for the last few years they have left them quite alone. I fed them during the few severe winters we have had, and perhaps it was gratitude [gratitude in a sparrow!] that induced them to act thus; but whatever the cause, there is the simple fact. Indeed there are many curious things which come under the notice of the gardener for which he cannot account: for instance, I have a grand border of *Chionodoxa Luciliae*, about 40 feet long, containing thousands of bulbs, but neither there nor in other parts of my garden wherever it appears (for it is almost a weed), have I ever seen a slug; but a friend who is a well-known and successful grower of herbaceous plants and bulbs, says he cannot keep it on account of their depredations. An allied plant, *Puschkinia scilloides*, I have never been able to keep for the same reason. *Wild Rose*.

—In the issue of the *Gardeners' Chronicle* for March 19, Dr. Bonavia asks if any one can suggest a remedy against the mischief sparrows do to Crocuses. For some years I have protected mine by running a black thread, supported by sticks 8 inches high, along the lines, and the birds never touch even the yellow ones. A few yards away, where the same precaution is not used, scarcely a Crocus is spared. As to the vagaries of sparrows, I can offer no explanation, though this year I have noticed that our public gardens have, in many spots, suffered little in comparison with former years, and the gardeners suggest that the birds are not so numerous. Here and there they seem to have acquired a taste for *Scillas*, and these have had to be guarded by threads, like the Crocuses, and with the same perfect success.

In fact, the sparrow will not go near any tree or plant near which it detects the black thread. W. F. Melvin, Dilkusha, Montrose.

THE SAN JOSE SCALE.—I see it stated in your pages, from an eminent authority on such subjects, that we have nothing to fear from the San José Pear scale in this country, because it is not likely to thrive here. Perhaps not, but I would like to know the difference between the San José scale and the Apple-scale of the same name in this country—"Aspidiotus," or the Pear-tree oyster-scale—"Diaspis," both already common in British gardens, and so much resembling in description the San José scale that I should not be the least surprised if they turned out to be the same, and that California got the scale from us instead of the reverse. The affected Pear, figured in your columns on Feb. 12, has an old acquaintance and peculiar look about it to one who has good reason to remember its depredations—only the Pear-scale is smaller and more oblong in shape. The latter, when it attacks the Pear, usually covers the bark so thickly to the extremities of the shoots, that you can hardly lay your finger on an unaffected spot. Many years ago, when the writer was under Mr. McIntosh at Drumlanrig Castle gardens, Dumfriesshire, a wall of Pears was threatened with destruction by the scale, to destroy which, as a desperate remedy, Mr. McIntosh had the trees painted with spirits-of-tar—a very long and disagreeable job in cold weather. The "cure" was perfect, but the tar destroyed all the fruit and leaf-buds as well, and the trees did not come into leaf till June and July, and the foliage was produced from adventitious buds that pushed from the smooth bark. I have never seen such leaves for size and luxuriance since. When I came to Wortley I found some wall-Pears similarly affected, and painted them with linseed-oil, which was nearly as effectual as the tar, but the effects of the scale are still visible on the old branches. The scale extended to the fruit, presenting exactly the same appearance as the figure given on February 12, only the scale was not so oyster-like in shape. I never saw the scale but except on wall-trees, and I have been wondering if the San José variety is only a thriving offshoot from the British stock, favoured by a better climate, and hence probably its new name *Aspidiotus perniciosus* instead of *Aspidiotus conchiformis*. It is queer that in English the San José is named the same as our own variety in some reports, viz. the "Oyster Scale." J. Simpson, Wortley. [The San José scale is quite different. Ed.]

PASSIFLORA EDULIS AND OTHER SPECIES.—Like many of your readers, I was much pleased with your life illustration of the garden or true edible Passion-fruit in the *Gardeners' Chronicle* for Feb. 12. The middle fruit in the figure is a *fac simile* of the species that I have grown in greenhouse, orangeries, and conservatory for years past. In such positions I have afforded the roots a border to grow in, and a soil consisting of two parts loam and one part peat. The growth of shoots was not stopped or much confined, unless an occasional stopping to furnish laterals where the area to be furnished was large. In mid-winter the lateral shoots were spurred in, like a Grape-vine, and the plants used to break freely and provide plenty of shoots furnished with foliage and flowers. In most cases no more warmth was used than would exclude frost, and not always that. Under this kind of treatment the plants were not infested with mealy-bug or other insect. The fruit to the right affords a good idea of the seeds and pulp with the rind removed; only grown in a cool temperature until quite ripe, the rind seems thinner in Nature than in the section. Nor must the shrivelled fruit on the left be taken as an indication that the ripe fruit on the plant suddenly shrivels when ripe. Like most other fruits, that of *Passiflora edulis* may, and does, shrivel, especially if grown in a very dry atmosphere, and in a stove temperature; but it is a long while about it, and is by no means a very perishable fruit. Were it not that this fruit is on the same plant as the central one, which is obviously the true *P. edulis*, one would almost be tempted to suppose that the fruit on the right had some connection with the warted species or variety of the same *P. edulis verrucifera*. [The name refers to the warts on the leaves and bracts. Ed.] I am very much obliged to "C. B." for confirming the fact that *P. edulis*, well-ripened, will stand 5° to 10° of frost, which I have frequently verified. We are all agreed that this tropical Passion-fruit, whether under the erroneous name of *P. quadrangularis*, *macroparpa*, *alata*, of several species or varieties, or any

other, could not live, thrive, nor produce edible fruits under such cold conditions. The size of the fruit is also so very different; its character, as you have already pointed out, very unlike. The true *edulis* is not much bigger than a bantam's egg, nor more than $\frac{1}{4}$ inch in diameter. The fruits of some of the tropical species of *Granadilla* may range from four to eight pounds in size and weight. And yet, unfortunately, the names of these edible Passion-flowers tell us little or nothing of their fruit. The best to eat, the easiest to grow of them, all our *edulis*, possibly got its name because the fruit of this species are produced in the greatest abundance for the longest period. But every Passion fruit that can be sucked, sipped, eaten with a table or teaspoon, or knife and fork, or otherwise, is equally entitled to the name. And then, nearly all our other names, such as the several varieties of *alata* and *quadrangularis*, &c., are mostly descriptive of leaves, stipules, stems, and flowers, rather than fruits. But *P. macrocarpa* is generally understood as applying to the fruit. But then, the stems and character of this fine Passion-flower are so like those of *P. quadrangularis* that they have got greatly mixed in practice. [The flowers are very different. Ed.] And this confusion has not been lessened by the appearance of *P. Hulletti* of gardens as *P. macrocarpa*. There are several other edible species and hybrids. But with the true *edulis*, occasionally grown as *P. incarnata*, which comes pretty true from seeds, and is readily rooted from cuttings, and one of the best of the tropical *Granadillas*, under the name of *alata*, *macrocarpa*, *quadrangularis*, or, mayhap, *amabilis*. The Editor would greatly oblige growers if he would kindly advise us under which name the finest of these tropical Passion-fruits—so distinct and different from the true *edulis*—is likely to be had. [macrocarpa. Ed.] Altogether independently of the edible merits or demerits of their fruits, few plants are more worthy of a place of honour or coin of vantage on the walls, rafters, or roofs of our plant-stoves for their towering stems, fine foliage occasionally variegated, as one variety of *quadrangularis*; curious tendrils and stipules, curiously formed; and richly-coloured flowers steeped in fragrance and sentiment. To these charms and graces may also be added the form, colour, and size of their growing fruits. I have not seldom felt and thought that these magnificent flowering, fruiting, fine-foliage plants, would probably be far more common in our plant-stoves if cultivators would cease trying to eat their riper fruits, and be content to feast their other senses on their marvellous fragrance and matchless beauty. Failing this consummation so devoutly to be wished, let us accept or reject these tropical Passion-fruits as an extra blessing, or otherwise, as taste or palate dictates; always excepting, however, from this self-denying ordinance *Passiflora edulis*, which, when grown in a cool temperature, is well worth eating in many ways. D. T. Fish, Fettes Row, Edinburgh.

HARDY PLANTS FOR FURNISHING FLOWERS FOR CUTTING.—In continuation of my remarks on p. 188 of the issue of the *Gardeners' Chronicle* for March 26, that when I mentioned in my previous communication, English and Spanish Irises and double-flowered Daffodils, I had in my mind bulbs planted in the autumn. All the same, there is no practical reason why people who may come to the conclusion in February, early in March, or, for that matter, as late in spring if good dry bulbs of the Daffodil and Iris are then obtainable, that they would like to plant a given space with these popular bulbous plants, should not forthwith do so. By doing so they gain time and strength, and obtain better floriferous results twelve months later than bulbs of the same size and quality planted the previous autumn will produce. Moreover, a few flowers will be secured from the spring bulbs the same season. Mr. Jenkins must know that thousands—hundreds of thousands—of Irises and Daffodils are advertised and sold during the months of January, February, and March, and he must also know that the said bulbs are purchased to be planted and, in many cases, the flowers are turned into money. Mr. Jenkins may like to hear that the *Francoa ramosa* is not an "unsafe" plant, with every-one out-of-doors. I have had it grow and flower freely in light soil, and sheltered from the north and east winds. The *Francoa* is a Chilean plant, but it has long since been naturalised to many growers in southern and western counties in England and Ireland. I omitted to say, when speaking of the *Alstroemeria*, that I sent pot-plants in six varieties to a customer residing in the west of Scotland last autumn for planting out-of-doors, and I hope to report on these in due time. My select list of

perennial plants did not purport to include all good perennials, only a portion of them, and Mr. Jenkins will do a service in including those which I, in order to save space, omitted from my list. H. W. Ward, Rayleigh.

FREESIAS.—I would have answered "W. L.'s" enquiry in the *Gardeners' Chronicle* before, but I have been abroad for some days. I grow mine in Amoy, China, out in the open; the soil I grow them in is light, and inclined to be sandy, and the drainage very good. The climate of Amoy is very similar to the climate at the Cape, whence, I understand, *Freesias* originally came. There is a dry season from October to January (after this much rain till the end of September), with almost no rain. I plant my bulbs in September or October, and they flower in February. I take up the bulbs about the end of May, dry them off and keep them out of the ground till planting time. I can only account for their fine growth on the supposition that the climate just happens to suit them. I give no manure or stimulant of any kind—of course, the bulbs are watered while making growth. My bulbs originally came from Foochow, where they do equally well; and they were imported into Foochow some years ago from the Continent (Europe). I fear my experience abroad will not help you much at home, but such as it is you are welcome to it. *Ixia*, *Callas*, *Sparaxis*, &c., do also very well with me. W. H. Wallace, Colchester.

GARDENERS' ROYAL BENEVOLENT ELECTION.—I venture to suggest a remedy to the committee and governing-body of the *Gardeners' Royal Benevolent*, viz., to make a rule that all voters give two-thirds of their votes to candidates who have been subscribers, the other third, if they choose, to non-subscribers; this would allow only a small percentage of non-subscribers getting the pension. Certainly something should be done to give encouragement to those who intend becoming members, and satisfaction to present ones. I am always advising young gardeners to join while they are able to pay their subscriptions. I am afraid they will hang fire if they find so many get the pension without paying a penny. A. J. Long.

—I am writing to give my support to what Mr. Denning has to say in *Gardeners' Chronicle*, at p. 172. It seems strange to my country mind to see such nonsense written about the institution by men who by this time should have had the small amount of perception necessary to get at the truth in this matter. What I mean by this term is in reference to the patience and liberality of yourself and some of your contemporaries for some years past in granting space for the free discussion and expounding the principles on which the institution is based. Though I have known Mr. Denning for thirty years, I have not seen him for over half that time; all the same I am pleased to see he has still the power of putting the truth of any subject he deals with in a small space. I would like to add this thought to what he says. Through the publicity given to the matter by the horticultural press and otherwise, all, or nearly all, the cases of distress are brought forward. Unfortunately we do not get hold of all those who from either self-interest, duty, or human sympathy, might, and ought to, subscribe to its funds. To my mind, this is the ferry that wants bridging over. H. J. C. Grimston, Tadeaster.

APPLE BLENHEIM ORANGE.—There is growing in the village of Welford-on-Avon, Gloucestershire, a monarch-tree of this very useful variety, which I should estimate is 150 years old[?]. It is in most robust health, and was a most glorious sight in September, 1895. That season there were gathered from the tree over forty bushels of well-coloured fruits of high quality. F. P., Leamington.

INARCHING AND GRAFTING VINES.—If I want to place a variety on a permanent Vine, I prefer inarching to grafting, as when performed on the current season's growth the union soon takes place. The young wood being very soft and very brittle, much care must be exercised in carrying out the work. Having settled on the point of union, the pot containing the new Vine must be made firm and safe in a convenient position for bringing into contact with the old Vine. The young wood in each case should have acquired some solidity before the splicing is attempted. This is simply done by paring off a thin strip from each, joining the surfaces accurately together, and keeping them in position with soft damped raffia pulled softly. An examination should be made in ten days, and if it be seen that the bandage is too tight, it must be replaced with another. In order to attach grafts to a young Vine,

the latter should have made some amount of growth, so as not to bleed when cut, and the scions to be employed should be subjected to a slight degree of warmth before they are made use of. The length of new wood on the stock should be fully 6 inches, and the scions should be two joints, or three eyes. Almost any form of grafting may be employed, and as a covering to keep out wet, wax or clay may be employed, binding fresh moss round the part, and keep it moist. H. Markham.

ARAUCARIA IMBRICATA.—In reference to the note on p. 188 respecting *Araucaria imbricata* ripening seed, I may say that we have a number of fine specimens in the grounds here, of which several frequently ripen seed perfectly. Last year one specimen bore upwards of thirty large cones. If the seeds are not secured directly, they drop from the cones, the rats and rabbits devouring them. A. Goswe I, Pitskill Gardens, Petworth.

ALSTRÖMERIAS.—I consider *A. aurantiaca*, *A. chilensis*, and *A. psittacina* to be perfectly hardy in this district if planted 6 inches deep. To these may be added *A. aurea*, which most botanists consider identical with *A. aurantiaca*, though it is sufficiently distinct for market and garden purposes. All of these survived the severe winter of 1895-96 without injury and without protection. This was a sufficient test in our cold clay soil, and the temperature as low as 8° below zero on the ground. I grow a large quantity, and it would not be difficult to cover an acre of ground with them in a short space of time, for they increase rapidly, and are not particular as to soil, provided they are planted deeply. I find them extremely useful for providing flowers for cutting, as they last so long in water. But their value for market purposes may be very low at present, because it requires a long time to induce the dealers to try a fresh species, and these do not bloom outside until almost the close of the London season. The above varieties give a good succession of bloom, commencing about the middle of July with *A. chilensis*, a fortnight later *A. aurea*, and *A. aurantiaca* blooms, and *A. psittacina* two or three weeks later. All of them should be planted at the end of October, and then remain undisturbed for several years. Seeds should be sown in pots as soon as ripe. I do not find the plants are weakened by cutting, although this takes away the greater part of the foliage. *A. versicolor* survived the winter in Kent for several years when I was a boy at home, but I have not tried it here; and *A. pelegria alba* is too scarce at present, although in pots it appears to grow freely. Four other species are mentioned in *Nicholson's Dictionary of Gardening*, but they appear to be very scarce, as I do not find them in any catalogue, or in the *Kew Hand-List*. The latter list mentions three more that are not in the Dictionary. W. H. Divers, Belvoir Castle Gardens, Grantham.

NURSERY NOTES.

MESSRS. J. LAING & SONS.

A HURRIED call some few days since at the Forest Hill Nurseries revealed a fine display of *Cliveias* in bloom, which served to show the much greater variety now presented by an up-to-date collection of these useful greenhouse plants than formerly. There is no white-flowered *Cliveia*, nor a blue one, and the differences the flowers exhibit in colouring are, of course, modifications in shade or tint. Still, these are sufficiently distinctive to give to the collection an interest that would be entirely wanting in a group of plants of the species *C. miniata* and *C. nobilis*. In the form of the flowers also there has been obtained an advance quite as marked, and the old "starry" narrow-petalled varieties that resembled the worst forms of *C. nobilis* have been succeeded by others with wider segments, that imbricate very prettily, and constitute a campanulate form, rather more like the flower of a *Vallota*. In one of the most recent seedlings, for instance, this is very apparent. It has been called *Dazzler*, which indicates that the flowers have a brilliant colour as compared with most *Cliveias*. The throat is white and yellow internally, owing to the basal portion of each segment being striped in the centre with yellow, whilst the margins remain white. But the flowers are most remarkable, as we have said, in that they are round, that the segments imbricate, and that

they recurve very beautifully. Queen Victoria is a seedling, possessing a yellow throat and stamens, whilst the tips of the segments are of a very soft shade of colour, that may be compared to flesh. The umbels carried fifteen or sixteen flowers upon each. The Rev. J. H. Foster, also new, was just passing. The flowers have a whitish throat, and are very faintly coloured throughout. There were ten flowers upon a noticeably short spike. Duke of Teck and Comet may also be mentioned as very meritorious among recent new ones. Vesuvius, among catalogued varieties, is one that can be well recommended, owing to the flowers being of good form and brilliantly coloured. Harry Laing, Earl of Rosebery, and last, but not the least valuable, John Laing. For half-a-dozen years the last-named variety has appeared to us the best in the collection, and probably it is unsurpassed even now, though the new Dazzler, in point of form at least, is an advance. Cliveias are not exacting plants in any way, and when out of flower even are ornamental, but they produce so fine a display in early spring that few gardeners should lack a collection.

Messrs. Laing's Caladiums look beautiful just now, and one of the largest of the houses is almost filled with the extremely delicate-looking young leaves of innumerable tiutis. But we hope to see them again before the Temple Show, where the groups of these popular plants are likely to be more numerous than ever.

"Pricking out" is the order of the day in the Begonia department, and as every tiny seedling is "pricked" twice, the work entailed by so many thousands is considerable. Still, such work is not lost, for seedlings of most plants may be grown more rapidly by frequent "pricking," and this is probably because the surface of the fresh soil allows the greater amount of fresh air to enter.

MESSRS. J. VEITCH & SONS, LIMITED.

The feature of the Chelsea establishment of Messrs. James Veitch & Sons at the present season is the houseful of Hippeastrums, the plants being at their best. No change has been made in the arrangement of the plants, and the flowering ones still occupy the central bed of the long span-roofed glasshouse, and the young and mostly flowerless representatives of potentially fine varieties, the narrow beds at the sides of the house. The home-strain of Hippeastrums is admitted to have reached the utmost limit of size, and it is now the endeavour of Mr. Heale, who is entrusted with the management of the bulbs, to obtain marked and pleasing variations of colour, or of markings, be these shown in feathering, bands, stripes, spotting, or edging. And the flowers are constantly disclosing traces of some or other of them. Mr. Heale's chief ambition, and one the realisation of which would afford the firm the greatest gratification, would be the appearance of a yellow or a white self. Numerous instances have occurred of white as a ground for shades of red, crimson, &c., but no wholly white blossom; and yellow appears, or seems to appear, as greenish-yellow, of undecided nature in a few recently-raised flowers, but this is quite enough to give the cross-breeder hope of future realisation. The other direction in which improvement is sought is in the extension of the width of the segments, especially of the lower one, as this tends to make a more symmetrical flower, although some of us think that in obtaining this point, piquancy and pleasing irregularity are injuriously deleted. All kinds of flowers do not fit into a circle, or are improved when they are made so to do.

The best of those open on the day of our visit were Tamaris, of brilliant scarlet, which seen against the light shows darker reticulation. The segments are of desirable breadth. Adana is a crimson variety of fine form and large. Balauus is of purplish-crimson, with an undefined white band in the middle of each segment; a tall and strong scape. Edom, bright scarlet, with a central white band, and a faint vestige of green in the throat. Ridones is an orange-scarlet; a large and symmetrical flower. Cyrene is a deep crimson self, in form extra good, having broad segments; Macedo is another self, of about the same tint.

Sylph is a white-ground flower, with rose-coloured veins, the white running into green at the base, as is a common feature with many. Emo is of bright scarlet, with a distinct eye, and an excellent form. Macerio is a finely-reflexed flower, white, with bold scarlet veining, especially marked on the upper three segments. Hermatus differs a little from the last, in possessing fainter marking and less reflexed segments. Creswick is a deep crimson, of regular outline. Favorinus has a crimson feather on a greenish-white ground, and is a distinct fine form. Jobates is a pretty reflexed flower, white, with "green in his eye." Racilia is a flower having narrow segments, almost a crimson-coloured self, showy and distinct. Fararos has a crimson feather on each upper segment; the lower ones are lacking in breadth. Varnia is a purplish-crimson flower, with much green at the base; and Pachos is a very dark crimson self. Of the flowers out when we saw them, the best were most decidedly dark-coloured, although on surveying the bed we should have said that lights and darks were about equal in numbers, the central bed holding about 1100 plants.

Warm-house Rhododendrons were making a small show, and we remarked several varieties of *R. balsamiflorum*, of *R. multicolor* var. *Neptune*, *Ceres*, *Ne Plus Ultra*, *jasminiflorum*, and the old *Princess Alexandra*. The stock of plants showed, in the healthy colour of their foliage, vigour of growth, and well-regulated trimness, how well their culture is understood.

The Cliveias made a splendid bit of colour in a small house, but having noticed the best of these plants in our report last week of the Royal Horticultural Society's meeting, nothing further need be said beyond the fact that we saw no pure orange, yellow, or white-flowered one; but these are sure to come.

In the Orchid-houses, plants were noted of *Dendrobium Hildebrandi*, flowers yellow and white, a good winter bloomer; *D. Wiganæ*, primrose-yellow, with a crimson base to the lip, a cross between *D. nobile* and *signatum*; *D. Euterpe*, a cross of *D. Wardianum* and *nobile*; *D. Cybele*, and *D. Rolfei*; a quantity of *Oncidium ampliatum* coming on, with flower-stems of great strength; and a variety of *Cymbidiums*, *Epidendrums*, &c., in bloom in the rock-house.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

MARCH 22.—*Present*: Dr. M. T. Masters (in the chair); Prof. A. H. Church, Mr. J. Hudson, Mr. Michael, Mr. A. Suttou, Prof. Church, Dr. Müller, Rev. W. Wilks, and Rev. Prof. G. Henslow, Hon. Sec.

Orchid Roots with Fungus.—With reference to the nature of the fungus attacking Orchid-roots in a damp atmosphere, referred to at the last meeting, Dr. W. G. Smith, of the Yorkshire College, Leeds, writes as follows:—"The Orchid aerial roots sent contained a fungus which lives on them, and has killed some already. The absence of any form of reproductive organs renders it impossible to identify the parasite. Other portions of diseased plants (i.e., leaves) would be required to ascertain the true nature of the fungus. The fungus present attacks living cells, consumes the food laid up by the plant, and finally kills the roots. A disease having somewhat the same effects has been found in the Vanilla plants of Mauritius."

Palm Leaves Discoloured.—Mr. W. A. Holmes, of the Putney Nurseries, sent some portions of Palm-leaves with numerous translucent spots. They were received from the Continent. An examination appeared to indicate a previous attack by insects, but none were present, the interior tissue having disappeared from the spots; so that the new leaves would probably be quite healthy.

Vine-Browning.—Mr. Hudson showed a young shoot, the leaves of which were blistered and brown. This is due to the presence of myxomycetous fungus, *Plasmodiophora vitis*, allied to *P. Brassicæ*, the "slime fungus," which gives rise to "club disease," or "finger and toe," in cultivated cruciferous plants. The only remedy is to cut away and burn all affected leaves or shoots. It is described and figured in Viala's *Maladies de la Vigne*, p. 400.

Ivy Sports.—Dr. Masters exhibited sprays of a peculiar small-leaved dwarf Ivy, remarkable for sending up vertical shoots with distichous leaves, though unattached to a wall. The habit appears to have become fixed, even in free-growing branches. On some shoots, however, the leaves were spirally arranged, as is usual on such branches. It may be observed

that the change from the distichous arrangement of the leaves on the horizontal branches of the common Laurel to a spiral one, when the boughs grow erect, is common; but it is not a fixed character.

CORNWALL DAFFODIL AND SPRING FLOWER SHOW.

MARCH 15, 16.—This meeting, due in its first beginning to the enthusiasm and foresight of the Hon. John Boscawen of Tregye, Perranwell, has quite outgrown its local character, and bids fair to become the most important of our early exhibitions.

It is indeed somewhat strange that the great value of such a fixture did not years ago occur to the Cornish professional and amateur growers, considering the unique adaptation of Scilly and much of the mainland of Cornwall for the production of flowers in the months which are still winter up-country, and the ever-increasing demand for early produce by the large towns. The Narcissus industry of Scilly is now an old story, but until the last two years, there has been no exhibition at a Cornish centre where all those interested in such floriculture could meet and confer upon the best flowers and the best cultivation.

The Show this year was held in the Concert Hall, Truro. Could the severe check—even in Cornwall—brought about by the weather of March have been foreseen, no doubt the flowers would have benefited in both quantity and quality by a postponement to a date one week later. Still the entries were far in excess of those of 1897, and the quality, though scarcely equal to that of last year, was a wonderful season, was excellent. Of the cut daffodil blooms it may be said that they were wonderful; probably many visitors who gazed upon Mr. D. H. SHILSON's magnificent display of crimson, pink, and white had never dreamed that such flowers could be produced in England out of doors in the first days of March. The finest stand of Narcissi, taking into consideration both variety and quality, came, as might be expected, from Mr. DORRIEN SMITH of Tresco, Isles of Scilly. Every variety of note, except a few of the very latest, was represented, and the flowers were perfect in substance, size, and colour. The Silver Cup offered by Messrs. Barr & Sons, of Covent Garden, was won by the Rev. A. T. BOSCAWEN with a beautiful collection, showing skilful cultivation and the excellence of the soil at Mount's Bay. Mr. P. D. WILLIAMS of Lanarth, St. Keverne, took the cup given by Mr. T. S. Ware, with a stand in no way inferior. The prize for the best new seedling Narcissus fell to the share of Mr. J. C. WILLIAMS of Caerhays Castle, St. Austell, the President of the Society. In the classes for double and Polyanthus Narcissi—both of these most valuable market kinds the production of which should be encouraged by our shows—Lady MARGARET BOSCAWEN was easily 1st. Splendid scarlet *Anemone fulgens* was staged by Miss M. H. WILLIAMS. In the Rhododendrons classes, the board was swept as usual by Mr. D. H. SHILSON. Extremely fine Violets, Parma and Marie Louise, were shown by Lady M. BOSCAWEN. In all the classes there was close competition, and the available space was fully taken up. Messrs. BARR, WARE, VEITCH of Exeter, and DICKSON of Chester, staged large collections of spring flowering plants and shrubs. The committee are much to be congratulated on the deserved success of this meeting.

SHIRLEY GARDENERS' MUTUAL IMPROVEMENT.

MARCH 21.—The annual general meeting was held on the above date, the President, Mr. W. F. G. SPRANGER in the chair.

The report showed that twelve meetings had been held during the past year, and that the attendances amounted to 516, averaging 43 members per meeting. There was a balance of £3 odd in favour of the Association. The President, Vice-President, Treasurer, and Secretary were re-elected, and a committee of fifteen members chosen by ballot. After the business of the evening, there followed an entertainment, which was much enjoyed.

TORQUAY SPRING SHOW.

MARCH 23.—The Torquay District Gardeners' Association, under whose auspices the flower-shows are now held, achieved a distinct success on the above date. The centre of the hall was filled with circular groups of miscellaneous plants, there being keen competition.

Mr. W. Satterly, gr. to Miss Rawson, was 1 with a well-grown and tastefully set up exhibit. The Orchids shown by Mr. G. Leo, gr. to Miss LAYERS, were a great attraction, as was the stand (not for competition) shown by Mr. W. Bale, gr. to J. SNEGROVE, Esq.

The greatest novelty was an artificial lake with electrically illuminated fountains which was laid out by Mr. F. W. Meyer of Messrs. R. VEITCH & SONS, Exeter, at the suggestion of the Association. The Cinerarias made a showy display, the chief honours for which were secured by Mr. F. C. Ferris, gr. to J. W. KIMBER, Esq.

MESSRS. W. ALLWARD, W. BURRIDGE & SONS, CURTIS, LANGFORD & CO., LTD., W. B. SMALE, MESSRS. BEAHEY & CO., and the South Devon Fruit Farm, also exhibited.

The Cyclamens shown by Mr. R. W. Holder, gr. to Mrs. S. BARKLEY, were also noteworthy.

SOUTHAMPTON HORTICULTURAL.

MARCH 29, 30.—The first spring show was held by the Royal Southampton Horticultural Society in the Victoria Hall, and from a horticultural point of view it was a great success.

The usual spring-flowering exhibits were contributed in fresh and good condition generally. Mr. Carr, gr. to W. A. GILLET, Esq., Fair Oak Park, Bishopstoke, won 1st prize with a collection of Orchids, interspersed with Ferns and foliage plants, staging many well-flowered examples. Mr. Carr also contributed the most pleasing group of miscellaneous plants arranged for effect. Mr. Peel, gr. to Miss PEEL Sidford Lodge, Shirley, was 2nd in this class. The last-named exhibitor secured premier award for eight specimen stove and greenhouse plants, with fairly good examples.

Mr. Mitchell, gr. to J. WILLIS FLEMING, Esq., Chilworth Manor, had the best-flowered Azaleas. Mr. WILLIS, florist, Shirley, staged the best Hyacinths in twelve varieties. Mr. CARR contributed creditable Primulas and Cyclamen, and Mr. MITCHELL some Lily of the Valley. Mr. Horsey, gr. to J. P. E. D'ESTERRE, Esq., Elmfield, Millbrook, 1st, had a really good exhibit of Cinerarias. Cut flowers in epergnes and baskets were attractive. Miss WADMORE, Basingstoke, occupied a similar position in the last named section.

Miscellaneous contributions for exhibition only were numerous and pleasing; and those of Mr. LADHAMS, Mr. WILLIS, Messrs. LONGSTER BROS., and Messrs. BRIGHTMAN and ANDREWS were conspicuous for good quality. Mr. FUDGE, as usual, carried out very efficiently the Secretarial duties.

BRIGHTON AND SUSSEX HORTICULTURAL.

MARCH 29, 30.—This, the first show of the season, was excellent in almost all classes, both for the number and quality of the exhibits.

Open.—Mr. J. Hill, gr. to C. WALLIS, Esq., Springfield Withieane, won in the chief class for groups, having a very pretty arrangement of easily-grown plants; followed by Mr. G. MILES, Dyke Road Nursery, who was also placed 1st for a table of plants.

Mr. J. Harper, gr. to E. A. TUCKER, Esq., Vernon Place, Preston, was 1st for a collection of Orchids, Lycaste Skinneri splendens, Sophronitis coccinea, Cattleya Trianei, and Lælia harpophylla being good; Mr. H. Garnett, gr. to R. G. FLETCHER, Esq., Mount Harry, Preston, 2nd, with a good lot of plants.

A mantelpiece and hearth decorated with plants was a new and attractive feature, and one which might be followed by other societies. Mr. G. MILES, Dyke Road Nursery, was 1st, and was followed by Mr. E. Meachen, gr. to Mrs. AARSTRONG, Woodslee, Preston.

Hyacinths and Tulips were excellent. Mr. J. House, gr. to Sir F. MOWATT, K.C.B., Withdeane, being 1st, and Mr. E. ANDERSON, Preston Park Avenue, 2nd.

We have not seen Lily of the Valley and Lachenalia better or more numerous here; Mr. A. E. Golding, gr. to H. St. GEORGE VOULES, Esq., Dyke Road, was 1st for Lily of the Valley, and Mr. J. Turner, gr. to Sir GAENVILLE SMYTHE, Wick Hall, was 1st for Lachenalia.

The twelve pots of Mignonette from Mr. W. E. ANDERSON, and the Spiræas from Mr. G. HOUSE, also deserve special mention.

Cyclamen from Mr. C. Murrell, gr. to Mrs. JENKINS, Burgess Hill, and Genista fragrans from Messrs. W. MILES & Co., Hove, were much beyond the average; and the gardener, whose names are mentioned were the winners in the order of their names. Six grand Hippeastrums came from Mr. G. HOUSE.

Cut Flowers.—Narcissus were clean and good, and some fine boxes of twelve varieties came from Mr. J. Harper, gr. to E. A. TUCKER, Esq., Preston; and Mr. M. Tonrie, gr. to F. BANCHARD, Esq., Horsted.

Stove and greenhouse cut flowers were well shown by Mr. H. Garnett, gr. to R. G. FLETCHER, Esq.

Cut Roses were not numerous. An excellent box of twelve blooms came from Mr. G. W. PIPE, The Nursery, Uckfield.

A stand for the table, to consist of natural flowers only, saw close competition. Mr. E. MEACHEN just winning the 1st prize; Mrs. TONRIE, The Gardens, Little Horsted, being 2nd.

Groups from the amateurs were good, and in arrangement and material they were well up to the average. Mr. J. R. CATTLE, Dyke Road, was 1st.

There was a large number of non-competitive exhibits, the best being miscellaneous plants from Messrs. BALCH & SONS; Messrs. CUTBUSH & SONS had hardwooded plants; Mr. G. W. PIPE, cut Roses; Mr. W. GOODCLIFFE, Ferns; and Messrs. CHEAL & SONS, fruit.

ROYAL BOTANIC.

MARCH 30.—This society held its first show for the present year on Wednesday last, and the exhibits were staged as usual in the Conservatory and adjoining corridor. The schedule contained thirteen competitive classes, but the exhibits in this section were extremely few, very little competition occurring in any class. The greater part of the display was due to the collections from the trade, which in many instances were most commendable.

Messrs. BARR & SONS, King St., Covent Garden, made an extensive exhibit of Narcissus blooms, Narcissi in pots, and

of Tulips in pots. The large trumpet sorts such as Sir Watkin, Obvallaris, Horsfieldi, Golden Spur, Princeps, Maximus, and others, were most represented, but the incomparabilis section was shown in some variety also. The choicest blooms, and the best varieties however were to be seen in pots. These included the new bicoloured Victoria, also Madame Plomp, Weardale Perfection, Glory of Leiden, and others.

Cyclamens were again shown in splendid manner by the St. GEORGE'S NURSERY Co., Hanwell, who had a large sized group of plants in flower.

The CHURCH ROAD NURSERY Co., also of Hanwell, were the exhibitors of a group of Cyclamens of much merit.

Messrs. WM. PAUL & SON, Waltham Cross Nurseries, Herts, exhibited a very large group of Hyacinths in pots, but the season being late the flowers were rather less effective than in the excellent display made by the same firm recently at the Drill Hall. Cineraria, flowers blue and purple, Emperor of the Reds, and Ball of Gold were among the novelties included. Messrs. PAULS' group of Roses in pots was very appreciable.

Camellias, as finely grown, abundantly-flowered plants and as cut blooms in boxes were magnificent, from Messrs. PAUL, of Waltham Cross, and were one of the very brightest features of the Show. Of novelties, Pride of Waltham is a first-class variety, producing large handsome flowers of deep flesh colour or pink, very prettily veined.

Messrs. J. CARTER & Co., High Holborn, London, showed a group of Cinerarias, representing a strain of large and brilliantly-flowered varieties, but less compact in habit than some.

Cinerarias were also shown by Messrs. A. W. YOUNG & Co., Stevenage Nurseries, Herts.

Mr. W. RUMSEY, of Joyning's Nursery, Waltham Cross, staged Rose blooms in eight boxes, which included a large number of flowers in considerable variety.

Mr. H. B. MAY, Dyson's Lane Nursery, Edmonton, had a small group of choice Ferns. Noticeable was a very pretty plant of Lomaria ciliata major; also Nephrolepis plumosus, a much-crested variety; Asplenium ornatum, the distinct and pretty Gymnogramma Mayii, Pteris bianrita, and P. argentea.

A very large group of Ferns was shown by Messrs. J. HILL & SON, Edmonton, a firm that has exhibited extensively of late at the Drill Hall and elsewhere. The group under notice was composed of capably cultivated plants, and several of the genera, including Adiantum, were represented by choice varieties.

Messrs. T. JANNOCH, Dersingham, Norfolk, exhibited forced Lily-of-the-Valley in the form of small moss-covered pyramidal cones.

Orchids in a group were contributed by Messrs. HUGH LOW & Co., Bush Hill Park Nurseries, Enfield. Conspicuous in this exhibit were Odontoglossum purpureum, gloriosum, Andersonianum (very fine), triumphans, and O. t. intensum, a deeply coloured form; Dendrobium Boxallii and Cattleya Trianei were good.

Mr. T. S. WARE, Hale Farm Nurseries, Tottenham, contributed a group of Narcissus in pots, and a number of cut flowers in variety.

Messrs. B. S. WILLIAMS' very bright group from Holloway was composed of Hippeastrums, Cliveas, forced Lilacs, a few species of Orchids in flower, and a group of plants of Azalea mollis. A fine large white-flowered greenhouse Rhododendron named Madame Cavalier was good. Of Orchids, there were plants of Odontoglossum crispum, Cologynis cristata, Zygopetalum Porrenodi, and the pretty hybrid Phaius Normanii. A well-flowered plant of Epidendrum radicans was very effective. Of Hippeastrums, the varieties Gerald Balfour and Holloway Belle were most noteworthy. Some florists' arrangements of flowers by Messrs. Williams & Son exhibited much taste, a basket of Daffodil blooms being particularly commendable.

Messrs. LAING'S group was a very miscellaneous one, and included many choice stove and greenhouse flowering and foliage plants. Some of the best Cliveas (see p. 205), from Forest Hill were shown, a few Caladiums, and several plants of the handsome variegated Leea amabilis, &c. A stand furnished with florists' arrangements and like exhibits was also contributed by Messrs. LAING & SONS.

A group of miscellaneous plants from Messrs. J. PEEB & SONS, Roupell Park Nurseries, contained many species, with ornamental foliage, and in addition, plants of Azalea mollis, Cliveas, Ericas, Lilliums, &c.

Mr. G. Kelf, gr. to Mrs. AAROT, South Villa, Regent's Park, staged a group, in which a collection of spring flowers was conspicuous. The majority of these were Tulips, Hyacinths, Azaleas, Narcissi, Lily of the Valley, Deutzias, Dicentra spectabilis, &c.

Messrs. W. CUTBUSH & SON, Highgate, London, placed several well-flowered plants of Magnolia Soulangiana in the centre of their group, and this included Acacias Drummondii and armata, Diosma capitata, several species of Erica, Boronia megastigma, Souvenir de la Malmaison, Carnations, &c.

COMPETITIVE CLASSES.

The best collection of hardy spring flowers, cut or otherwise, was adjudged to be a group of hardy plants in pots shown by Mr. T. S. WARE, Hale Farm Nurseries, Tottenham. The most noticeable of these were Fritillaria meleagris, F. m. alba, Muscari botryoides alba, Primula obconica, Orchis pallens, Scilla bifolia rosea, Hepatica triloba caerulea, &c.

Mr. G. Cragg, gr. to W. C. WALKER, Esq., Percy Lodge, Winchmore Hill, was awarded 1st prize for six Orchids distinct, which included Cyrtopodium Rothschildianum, Cattleya Schilleriana, Oncidium sarcodes, &c.

A 1st prize was awarded to the St. GEORGE'S NURSERY Co., Hanwell, for a collection of twelve plants of Cyclamens in flower. These were in 7 or 8 inch pots, and admirable specimens.

The 1st prize for a group of six hardy Azaleas, was awarded to Messrs. MOALS & Co., Finchley Road, London; and a 2nd prize was taken by Mr. W. KEMP, Gnyale Nursery, Barnes.

Messrs. MOALS also showed some Mignonette in pots. For twelve Cinerarias, a 1st prize was taken by Mr. J. Mowbray, gr. to the Hon. H. C. LEGGE, Slough, who showed very large plants in 10 inch pots.

There was no exhibit in the class for twenty-four Hyacinths, and but one poor exhibit in that for twelve Hyacinths.

For the Silver Daffodil Cup offered by Messrs. BARR & SONS, King Street, Covent Garden, for the finest display of cut Daffodils of the three groups, magni-coronati, medio-coronati, and parvi-coronati, in not fewer than forty different varieties, the only competitor was Mr. W. J. GRANT, of Bassaleg, Newport, Mon.; notwithstanding the recent gale, which was very severe in that district, Mr. GRANT staged about sixty-five varieties, and upon this whole, the exhibit was very commendable. The 1st prize was awarded Mr. GRANT.

MARKETS.

COVENT GARDEN, MARCH 31.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantums, p. doz.	4 0-12 0	Ferns, various, doz.	5 0-12 0
Aspidistras, per doz.	12 0-30 0	Ficus elastica, each	1 0-7 6
— specimen, each	5 0-15 0	Foliage plants, doz.	12 0-36 0
Azalea, per dozen	30 0-42 0	Genistas, per doz.	9 0-12 0
Cineraria, per doz.	6 0-8 0	Hyacinths, per doz.	9 0-15 0
Cyclamen, per doz.	12 0-18 0	Liliums, various,	
Dracenas, each	1 0-7 6	— per dozen	18 0-30 0
— various, per		Marguerites, p. doz.	9 0-15 0
dozen	12 0-24 0	Palms, various, ea.	2 0-10 0
Ericas, various, per		— specimens, ea.	10 6-84 0
dozen	9 0-18 0	Primula, single, per	
Evergreen shrubs,		dozen	4 0-6 0
in variety, doz.	6 0-24 0	Tulips, dozen bulbs	1 0-1 6
Ferns, small, doz.	1 0-2 6		

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Asparagus, English,		Lettuce, Cabbage,	
p. bundle, 10		p. doz. bunches	0 9-1 0
heads ...	5 0-8 0	— Cos, per doz.	2 6-3 0
— (Paris), Green,		Mint, per dozen	
per bundle	4 3-5 0	bunches	6 0-9 0
— Spanish ...	2 0-2 6	Mushrooms, per lb.	0 8-1 0
— Italian ...	1 4-1 9	Onions, Egyptian,	
— Sprus ...	0 8 —	cwt. bag ...	11 6 —
— Perignon ...	2 0 —	— Valencia, per	
— Cahors ...	1 0-1 6	case ...	13 0-14 0
Artichokes, Globe,		— Lisbon, per case	9 6 —
per doz.	1 6-2 6	— English, per	
— Jerusalem, sieve	1 0 —	cwt. ...	11 0-12 0
Beans, English		— Green or	
(Dwarf), lb.	1 0-1 3	Spring, per	
— Channel Islands,		doz. bun.	3 0-3 6
per lb.	1 0-1 3	Parsnips, per bag	2 0 —
— (Madeira), per		Parsley, per sieve	1 0 —
package	3 0-4 0	— p. doz. bun.	2 0 —
— French, per lb.		Peas, Pads, French	4 6-6 0
(in paper)	0 5 —	— bags of per lb.	0 5 —
Beetroots, p. bush.	1 6 —	Potatoes, Channel	
Broccoli, Kent, in		Isles, framed	
crates ...	6 0-10 0	kidneys, per	
— Cherbourg, per		lb.	0 5-0 6
doz.	1 9-2 6	— Algerine Kids,	
— sprouts, per		per cwt.	10 0-18 0
bushel	1 0 1 6	— Teneriffe, do.	12 0-18 0
— per bag	2 0 —	Radishes, Long, per	
Brussels Sprouts,		doz. bundles	0 9 0 10
per sieve	1 0-1 6	— Round, p. doz.	
Cabbage, Cherbourg,		bundles	0 6-0 8
per doz.	1 6-1 3	Rhubarb, York, doz	1 3-1 9
Cress per dozen		— grown out of	
punnets	1 6 —	doors, doz.	3 0-4 0
Coleworts, per bag	1 0-2 0	Salad, small, pun-	
Carrots, b. washed	2 6 3 0	nets, per dozen	1 3 —
— French, flat	2 9 —	Seakale, per dozen	
— New, per doz.		punnets	10 0-12 0
sm. bunches	1 0 —	— Scotch Kale, p.	
Celery, p. doz. rolls	10 0-15 0	bush.	0 9-1 0
Celeriac, per doz.	1 7-1 9	— per bag	1 6 —
Chicory, per lb.	0 3-0 4	Shallots, per lb.	0 2 —
Uncured, p. doz.		Spinach, p. bush.	2 0 —
fruits ...	2 6-4 0	Tomatoes, English	
Endive, per doz.	1 6 —	per lb.	1 0-1 6
Garlic, per lb.	0 4 —	— Canary, deep	
Horsoradish, per		boxes, 15 lb.	3 0-5 0
doz. bundles	0 0-12 0	— trays ...	1 0-1 6
— Cheshire (loose		Turnips, per bag	2 6-3 0
p. doz. sticks)	2 0 —	Turnip tops, per bag	1 6 —
Leeks, per dozen		— per bush.	1 0 —
bunches	1 6-2 0	Watercress, p. doz.	
		bunches	0 6-0 8

On Saturday last, owing to the inclement weather prevailing, the supply of green vegetables was short, and high prices ruled. Due no doubt to Saturday's prices there were large supplies on Tuesday, but little demand and quantities remained unsold. Egyptian Onions are now on the market, and they appear to be very good.

POTATOES.

Diminished supplies of home-grown have been made up by larger arrivals from Germany, hence market has been steady. Present rates:—Maincrops, Saxons, and Bruce, 105s. to 120s.; Blacklands, 100s. to 110s.; Dunbar Maincrops, 130s. per ton Foreign Ware, 4s. to 5s. per bag. New Potatoes, 11s. to 20s. per cwt. John Bull, 32 and 34, Wellington Street, Covent Garden, W. C.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arums, 12 blooms...	3 0-4 0	Orchids:—	
Azalea, doz. sprays	0 6-0 9	Cattleya, 12 bms.	6 0-9 0
Bouvardias, pr. bun.	0 6-0 8	Odontoglossum	
Carnations, pr. doz.		crispum, 12 bms.	2 0-4 0
blooms ...	1 0-3 0	Pelargonium, scar-	
Daffodils, doz. bun.	3 0-6 0	let, per 12 bun.	4 0-6 0
Eucharis, per dozen	3 0-4 0	— per 12 sprays...	0 6-0 9
Gardenias, 12 blooms	2 0-3 0	Primroses, 12 bun.	0 9-1 0
Hyacinth, Roman,		Rosea, Tea, per doz.	0 6-1 0
— doz. bunches...	4 0-6 0	— yellow (Pearls),	
Lilac, Fr., p. bunch	3 6-4 6	per dozen ...	2 0-4 0
Lilium Harris, per		— pink, per doz.	4 0-8 0
doz. blooms ...	3 0-4 0	— Safrano, p. doz.	1 0-2 0
Lily of the Valley,		— red, per dozen	3 0-6 0
dozen sprays ...	0 6-1 6	Snowdrops, 12 bun.	1 0-1 6
Maidenhair Fern,		Tuberose, 12 bms.	1 0-1 6
per 12 bunches...	4 0-8 0	Tulips, 12 blooms...	0 4-0 9
Mignonette, dozen		Violets, 12 bunches	0 9-1 0
bunches ...	2 0-4 0	— Parme, French	2 0-3 6
Narciss, various, per		Wallflowers, 12 bun.	4 0-6 0
dozen bunches ...	1 6-3 0		

ORCHID-BLOOM IN VARIETY

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, Californian,		Cob nuts, p. 100 lb.	16 0-18 0
cases, New-		Figs, per doz. fruits	8 0-18 0
town ...	13 0 —	Grapes, Worthing	
— about 40 lbs.,		new, per lb. ...	4 0-6 0
Ben Davis ...	9 6 —	— Jersey, new per	
— Canadian, bar-		lb. ...	3 0-4 0
rels, Winesop	25 0 —	— Dutch, new per	
— Golden		lb. ...	3 6
Russett 23 0-28 0		— Colmar, new	
— Ben Davis 23 0-27 0		per lb. ...	4 0-5 0
— Nova Scotia,		— Almeria, per	
barrels, Non-		dozen lb. ...	8 0-12 0
pareils ...	22 0-26 0	Pears, Californian,	
— English bush...		half cases	
French Crabs...	8 0-10 0	Easter Beurre 10 0-15 0	
— Beeding ...	7 0-10 0	Pines, each front...	2 0-5 0
— Gooseberry		Strawberries, p. lb.	8 0-10 0
Pips ...	6 6-9 0	Seconds ...	3 0-4 0
— Jacks ...	5 0-7 6		

Tasmanian Apples are expected to be on the market next week.

(Remainder of Markets carried forward to p. xiii.)



[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.				10ths Inch.	Ins.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 2, 1898.
	Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since January 2, 1898.	Below 42°, difference from Mean since January 2, 1898.				
0 0 aver	8	27	+ 45	- 167	4	71	18.3	37
1 1 —	10	31	+ 63	- 185	2	48	4.3	36
2 3 —	9	35	+ 102	- 169	1	40	3.0	32
3 5 —	8	42	+ 39	- 167	6	38	3.2	33
4 4 —	10	43	+ 46	- 180	0 aver	36	2.7	34
5 4 —	10	36	+ 62	- 203	3	35	3.4	33
6 2 —	12	30	+ 83	- 161	7	57	9.9	52
7 4 —	6	29	+ 82	- 190	4	48	7.4	51
8 4 —	14	35	+ 73	- 126	5	45	5.7	52
9 1 —	19	27	+ 89	- 127	5	57	7.5	57
10 4 —	19	19	+ 95	- 108	6	42	6.4	56
* 3 —	20	10	+ 115	- 83	1	54	4.3	44

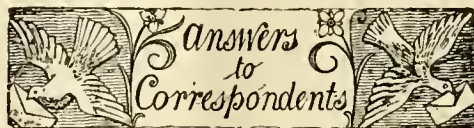
The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

CATALOGUES RECEIVED.

M. ROZAN-BOUCHARLAT, 88, Grand de Quire, Cuirs-les-Lyon (Rhône)—Pelargoniums, Cannas, Fuchsias, Dahlias, Bouvardias, Abutilons, Hibiscus, Lantanas, Begonias, Chrysanthemums, &c.

THE NURSERYMEN, MARKET GARDENERS, AND GENERAL HAILSTORM INSURANCE CORPORATION, LTD.—The third annual general meeting of the shareholders was held on Thursday afternoon last at Simpson's Ltd., Strand, after our pages were made up for press. We shall refer to the proceedings in our next issue.



ARUM ETHIOPICUM: J. F. You have done quite right so far; still keep them in theinery till they have filled the pots with roots, when you should afford them a shift into 32's, and about the middle of June they may be stood in a coal-ash bed in a sunny position to finish their growth, and afterwards to rest, turning the plants on their sides when the leaves begin to turn brown. Some growers plant them in trenches like Celery, but that is a method better adapted for late than for early work. Whilst the plants in pots are in an active state, weak manure-water should be afforded twice a week, stopping the application when full growth is reached. Having rested them by withholding water, the plants in the autumn should be placed in a cold pit or house where they will not be excited, or the soil rendered unduly dry by sun-heat before the period determined upon for starting them—say two months before spathe are required. The starting consists in gradually affording more water (they must never be kept quite dry), and placing them in a pit having a warmth of 55° by day and 48° by night, affording a few degrees more warmth as growth progresses, but never exceeding 60° by night and 70° by day. The best kind of soil consists of pasture loam one year in stack used in a rough unsifted state $\frac{3}{4}$, oxen manure $\frac{1}{4}$, and coarse clean sand; the potting done firmly, leaving plenty of space above the ball for holding water. The drainage should be good, but not excessive, and consist, therefore, of a few concave pieces at the very bottom, with fine, clean crocks above these.

BOOKS: F. S. S. *Hardy Coniferous Trees*, by A. D. Webster, published by Hutchinson & Co., 34, Paternoster Row, London, E.C. *Hardy Ornamental Flowering Trees and Shrubs*, by the same author, published at the office of the *Gardening World*, 1, Clement's Inn, Strand, London, W.C.—H. S. P. You will find the *Manual of Stove and Greenhouse Plants*, by B. S. Williams, published at the Victoria and Paradise Nurseries, Upper Holloway, one of the best. The late Thomas Baines' *Greenhouse and Stove Plants* contains much useful information. It is published by John Murray, Albemarle Street, Piccadilly, W.

CINERARIAS: A. C. The appearance is due to the fusion of several flower-heads into one. Doubtless in time it might be fixed, and would then be very ornamental, but you would require patience.

CLIVEIA: E. R. We can find no insects or fungi on your plant. The brown patches are cork formations, and have arisen, was suspected, after irritation to the epidermis by insects (e.g., red-spider) when the leaves were in a very young condition.

CELOGYNE CRISTATA: G. D. Place it in a warm-house, and it is a very easy plant to grow. Keep it well supplied with rain-water until the bulbs are fully made up, then remove to cooler house, and restrict, but not withhold, the water until the flower-spikes appear. Half-pots or Orchid-pans are better than the ordinary pot.

CELOOYNE CRISTATA ALBA: F. Archer. Without doubt the atmospheric conditions are unsuitable for your plant of *Celogyne cristata alba*. It is a moisture-loving subject at all times, and being suspended to the roof it is in dryish air. Place the plant down upon the stage in a warm, moist corner of the house, and during the season of active growth afford water copiously, and an occasional overhead syringing at the time of closing the house when the weather is suitable. H. W. W.

FUNGUS ON TOMATOS: C. M. Bitters. This minute fungus can with difficulty be guarded against in warm moist glasshouses. The best kind of preventative treatment consists in affording the maximum of light, as much ventilation as is consistent with progressive growth, and plenty of

space between the plants, and generally growing the plants "hard," soft succulent growth being very liable to attacks of fungus of different species. Seed taken from much-forced and debilitated plants should be avoided. Use as a precaution at intervals the Bordeaux Mixture, or sulphide of potassium, $\frac{1}{2}$ oz. in 1 gallon of water.

GRUBS ON ROOTS OF *RANUNCULUS*: H. H. Carlisle. Larvæ of one of the "Swift" moths (*Hepialus*). As they are now about full-grown and very conspicuous, it would probably be better to lift the plants, turn over the soil and pick out the grubs. A look-out should also be kept for the pupæ, as some of the grubs have probably changed by this time. Do not frighten away insectivorous birds, such as starlings, blackbirds, and thrushes. R. McL.

INJURY TO TULIPS AND SPIREAS: Jas. Long. We have not sufficient knowledge of the circumstances to decide what has caused the injury, but you are very likely to be right in suspecting the cespitool.

LILIUM HARRISI: *Lilium*. The leafy shoot has been formed prematurely, and will not produce flowers this season. It is not possible to say why it has taken on this growth.

LINDLEY LIBRARY: H. R. Received with thanks, the sum of 21s., for the Lindley Library. The amount has been paid into Coutts'. M. T. M.

MOUNDS MADE ROUND TREES: *Sycamore*. The effect of piling earth over the roots to the depth of 3 to 5 feet, will probably be to kill them, by depriving the roots of air. If you can build a rough sort of wall for a distance of 5 feet all round each stem, the evil will in a measure be prevented. As the trees are only twenty years old, it would be better to lift them this season, with large intact balls, and replant on the new level of the ground.

NAMES OF FRUITS: *Philomathus*. Pear Verulam, useful for culinary purposes only. We do not recognise the Apple.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*Philomathus*. *Rhipsalis salicornoides*.—T. T. 1, *Metrosideros floribunda*; 2, *Rhipsalis cassytha*.—B. W. M. 1, *Blechnum occidentale*; 2, *Goldfussia isophylla*; 3, *Aescia grandis*; 4, *Cyrtotium falcatum*; 5, *Asparagus plumosus*; 6, *Asparagus decumbens*; 3, *Cacalia* (*Senecio*) *ficooides*; 8, *Sisymbrium Sophia*.—B. A. *Ormskirk*. 1, *Lycaste fulvescens*; 2, *Epidendrum cochleatum*; 3, *Smilax aspera*; 4, next week.—*Sheffield*. *Dennstaedia davallioides*.—J. R. 1, *Echeveria retusa*; 2, *Celsia cretica*; 3, *Oxalis acetosella*; 4, *Pteris aquilina* (Bracken); 5, *Nephrodium molle*; 6, *Tradescantia variegata*.

SMILAX (MYRSIPHYLUM) ASPARAGOIDES: *Smilax*. The plant is doubtless in an unhealthy state, and you would do well to turn out the ball, and ascertain the state of the soil. It is not a very free-rooting subject, and the soil may have become sour from applications of water and manure-water, and from the small demand made upon it by the roots. It should be in growth at this season if in health. The plant is a trailer, and should be afforded a long piece of twine on which to ascend, otherwise it will remain a dumpy ill-shapen mass.

VINE LEAVES: F. W. The specimens sent are quite insufficient from which to determine the cause of the injury to your Vines. There is a disease known as "browning," the effect of a slime fungus, and figured in the *Gardeners' Chronicle*, August 19, 1893, p. 217; but whether it is this, or mere sun-scorching, is not clear.—G. B. We have found no fungoid disease in the leaves after most careful cultivation to develop such if present. The black spots appear to have been caused by the sulphur. If the Vines cause further trouble, you may send fresh specimens.

WOOD: A. Tester. It is a piece of Bog-oak, which has been preserved probably for unknown ages by the preservative properties of a peat-bog.

COMMUNICATIONS RECEIVED.—C. W. H.—A. C.—H. R.—E. G. H.—H. B. B.—H. C. W.—R. L. H.—D. R. W.—Sec. Gardeners' Orphan Fund.—H. J. V.—W. C. W.—E. E. K.—G. H.—H. M.—M. F.—K. L. H.—W. T.—H. C. W.—J. H. P.—E. A. W., Ltd.—T. H. J.—Banks.—B.—J. H. P.—F. G. B.—H. D.—G. G.—E. C.—E. S.—T. S.—H. R. W.—T. F.—J. P. J.—Prof. M. Foster.

DIED.—Recently at Hampshire House, Hammer-smith, Sarah Anne, the wife of Mr. T. P. TURNER, Rivercourt Nursery, and Bridge Road, Hammer-smith.



THE

Gardeners' Chronicle.

SATURDAY, APRIL 9, 1898.

COBBETT'S "ENGLISH GARDENER."

EVERY age has had its political or social firebrand—a prophet crying in the wilderness, a reformer fulminating in the crowded thoroughfare. Regarded almost invariably by their contemporaries as dangerous iconoclasts, if not as incurable lunatics, posterity, where it does not directly reverse such verdicts, nearly always modifies them very greatly. In an astonishingly large number of instances, the abuses which the governing portion of one generation regarded with perfect equanimity, have come to be recognised by the next as intolerable, so that the prophet who is disregarded and even condemned in his own age, becomes, in the course of time, accepted as a patriot and a reformer of a high type. His theories are put into practice with the most beneficial results—leaving the community at large to wonder, not so much at the existence of anomalies, as that they should have been tolerated for so long a time. The closing years of the last century and the opening ones of the present were marked by many deeply-rooted abuses, of which we at the present day, with our comparative immunity, can form no adequate conception. The number of men who were protesting, verbally and through the medium of the press, was, all things considered, very few. William Cobbett was one of the most vehement and uncompromising of this small band. Most of the others have faded into a respectable obscurity, but Cobbett looms largely in the crowded canvas of his period.

With Cobbett's politics, his quarrels, and his various escapades, we have in this place nothing to do. There is, however, one phase of his career which has been very much overlooked, and that is the conspicuous ability with which he wrote on gardening and allied subjects. When it is remembered that this man was the son of a farmer and publican, that he was absolutely self-taught, and that he wrote well on an infinite variety of topics, it will, I think, be seen that he fully utilised the opportunities which were placed in his way. He was a striking contradiction of that time-honoured fallacy, that "a rolling stone gathers no moss," for perhaps no man wandered more than Cobbett; and certainly none "rolled" with such advantage as he. Cobbett was born at Farnham, Surrey, in March, 1762, and after spending some years at work in the fields, he came to London and obtained a situation as a copying-clerk to an attorney; his next move was to enlist in a line regiment, and for some years he was stationed in Nova Scotia, obtaining his discharge in 1791 "with honourable notice."

He emigrated to America, and developed into an "author by profession," writing pamphlets, translating from French for the booksellers, and rapidly became a distinct force in American politics. He started a bookstore in Philadelphia, and when that place became inconveniently uncomfortable, he removed his business to New York, and returned to England in 1800.

We need not follow Cobbett into the bewilderingly numerous phases of his literary career, but it is peculiarly interesting to notice that by the year 1804 he was, in addition to his literary work, busily engaged in agricultural pursuits on a large scale at Botley, in Hampshire, which estate he purchased with the proceeds of his pen. In 1821 he started a seed-farm at Kensington, and in this year appeared what is, so far as we are concerned, his first important work, *The American Gardener*, which, with certain modifications, appeared under the title of *The English Gardener*, in 1829. This work, which was "published by the author, 183, Fleet Street, London," marks an era in the history of the gardening literature of this country. Cobbett was not only full of theory and of practical knowledge, but he possessed the then uncommon ability of writing on practical gardening in clear and vigorous English. His predecessors were, for the most part, either botanists who possessed only a rudimentary knowledge of gardening proper, or they were highly skilful gardeners, without the ability to express in a lucid manner their own operations. Every editor of a gardening paper, even at the present day, knows of the existence of this very trying anomaly on the part of some of their most valuable contributors—men whose knowledge is of the wisest and most intimate description are often unable to adequately commit to paper details which to them are as simple as the proverbial A B C. The present writer could name at least one book by a distinguished writer on practical gardening which, after being entirely set up in type, had to be entirely re-written, and, therefore, re-set. In practical details there is not, it must be admitted, much room for brilliant writing, but that is no excuse for involved sentences or Johnsonian pomposity.

Cobbett had a very high opinion of himself in most things, and in nothing so much as the excellence and the purity of his mother tongue. Wherever one dips into *The English Gardener* it is the same, a clear, concise, and vigorous style, which is quite captivating. In many cases the instructions to be found in Cobbett's book are as applicable to-day as they were seventy odd years ago. The book, which is unpagged (but comprises about 400 pages), is divided into seven chapters, and the whole work is re-divided into 551 paragraphs, each of which deals with one particular subject. The author proceeds upon the assumption that the reader is wholly unacquainted with all the matters of which his book treats. "Experience," says Cobbett, "has taught me the necessity of proceeding in this way; for, when I have had to apply to books to be my teachers, I have invariably found that the authors proceeded upon the notion that the reader only wanted a little teaching; that he understood a great part of the subject, and only wanted information relative to that part which the author happened to think of the greatest importance. By looking on the reader as knowing nothing at all about the matter, the author is led to tell all that he knows. . . . I make no apology for the minuteness with

which I shall give my instructions, for my business is to teach that which I know, and those who want no teaching, do not want my book."

A curious anecdote is told of Lord Bacon in Tull's famous work on *Horse-hoeing*, to the effect that this great man, having made a vast collection of books on horticulture and agriculture had them one day all collected together, omitting not one, had the pile carried into the courtyard, and there set on fire, saying: "In all these books I find *no principles*; they can, therefore, be of no use to any man; he must get principles for himself, or he must go on till the elements have instructed him, and, in either case, he can stand in no need of books like these." The anecdote may probably be more fiction than fact, but it served Cobbett's purpose to "nail" the theory that when once the learner knows the reason for that which he does, he may be said to have learnt it, and not before. As to the manner of studying *The English Gardener*, the author advises the reader to begin by "reading it all through, from the beginning to the end, and not to stop here or there to learn one part of it at a time. If he were to do this three times over, it would only require the time frequently devoted to three or four volumes of a miserable novel." Mr. Cobbett's modesty is certainly not his least amazing quality, although his arguments are perfectly logical. The chief cause of failure, he contends, lies in omitting to carry out instructions in their entirety. He again quotes Mr. Tull, who very justly complained that those who condemned his scheme, and asserted that they had tried it, and found it to fail, always omitted some one thing, which omission rendered the other operations abortive. "Their great error is in the mis-use of the word *IT*—they say they have tried *IT*! they have tried something, to be sure; but they have not tried my scheme."

Cobbett severely condemns the practice of "placing the kitchen-garden in some out-of-the-way place, at a distance from the mansion-house, as if it were a mere necessary evil, and unworthy of being viewed by the owner." The author backs up his complaint with the unanswerable enquiry—"In the time of fruiting, where shall we find anything much more beautiful to behold than a tree loaded with Cherries, Peaches, or Apricots, but particularly the two latter?" And he then further silences objections with this remark—"It is curious enough that people decorate their chimney-pieces with imitations of these beautiful fruits, while they seem to think nothing at all of the originals hanging upon the tree, with all the elegant accompaniments of flourishing branches, buds, and leaves." The position "must absolutely be open to the south; well-sheltered, if it can be, from the north and from the east; but open to the south it must be, or you can have neither fine wall-fruit, nor early crops of garden-plants." He insists that a slope is exceedingly desirable; "but to have the whole of a garden upon a slope is by no means desirable; for, however gentle the slope may be, the water will run off, and, in certain cases, it is absolutely necessary that the water should not run away, but have time to soak gently into the ground. I have had great opportunity of acquiring knowledge in this respect. Part of my ground at Kensington forms a very gentle slope. The soil of this slope is as good, both at the top and bottom, as any ground in the world; but I have always perceived, that seeds never rise there with the same alacrity and the same vigour as they do upon the level part, though

the soil there is much inferior." Cobbett instances the kitchen garden of Mr. Henry Drummoud, at Albury, Surrey, as being, in his opinion, "nearly perfection," and as "well worth the trouble and expense of a long journey, to any person who has a taste that way."

We have no space in which to follow Cobbett in his other sections, which deal respectively with soil, enclosing, and laying-out of kitchen gardens, but it is interesting to note that the theories which he held are substantially those which are held to-day. Dissertations on hot-beds and greenhouses, on propagation and cultivation in general, on seeds, transplanting, and so forth, in none of which is there apparently much scope for "incidental" writing, but in all of which Cobbett is entirely original and frequently entertaining. He exposes many old-fashioned theories, notably, that in which it is insisted that the ground "grows tired" in time of the same plant; in support of this he not only refers to Mr. Tull, but instances a neighbour of his, who, and whose father, had for upwards of fifty successive years grown Peas in the same border, which Peas, he says, "were as fine, and as full bearing, as any that I ever saw in England."

The fifth, sixth, and seventh chapters form the body of the work, and deal respectively with kitchen-plants and fruits, each section being arranged alphabetically, and with full particulars as to propagation, cultivation, and so forth, often interspersed with Cobbettisms which greatly enliven what cannot help being in a general way somewhat heavy reading. It is not easy to believe that Cobbett could have had practical experience of all the many plants and subjects which he writes about in this book; it is quite certain that his knowledge of gardening was extensive, and his powers of observation and of memory abnormally keen; and where he lacked experience he appears to have assimilated the teaching of others in a truly wonderful manner. *The English Gardener* is on the whole a most interesting book, full of sound practical teaching, and it is one of the few books of its kind which would well bear reprinting, not as a relic of antiquity, but as a practical guide to gardening. *W. Roberts.*

NITRATES IN THE SOIL.

As soil fertility is of so much importance to horticulturists, and as the productiveness of a soil is directly proportionate to the amount of nitrates which it contains, and the facilities or favourable conditions presented for the conversion of organic nitrogen into ammonia and nitrates, the subject of nitrification becomes one of intense interest to all cultivators of the soil.

Nitre or saltpetre is a compound of nitrogen, which represents the form of combination in which nitrogen must be in order that plants may use it as food.

The organic nitrogen of the soil, called its inherent fertility, as well as that contained in such fertilising matters as stable or yard-manure, dried blood, fish scraps, rape-cake, vegetable and animal-refuse, &c., is not in a condition to serve as plant-food. To become available it must be converted first into ammonia and then into nitric acid.

All nitrates are formed in the soil through the agency of small microbes or living organisms called bacteria, which require certain conditions for their proper growth and development. These requirements may thus be briefly stated: air or oxygen, a due amount of moisture, a proper temperature, that ranging from 95° to 100° Fahr. being considered the best; phosphates and other ash ingredients of plants, a mild alkali, such as carbonate of lime (chalk);

and organic matter (humus) containing nitrogen. Shade is favourable to soil nitrification.

The germs themselves are in greater or less numbers in all cultivated soils, and in order for a soil to furnish the conditions necessary, as enumerated above, it must be loose and porous, so as to admit atmospheric air freely; it must be well drained, and have good capillary action, so that at all seasons it will, as nearly as possible, contain that amount of moisture about it which is present when ground digs well, as this is found to be the degree of moisture most desirable. The soil should have plenty of organic matter (humus) within it to furnish nitrogen, and favourably influence the supply of water. For this reason horticulturists find leaf-mould, pasture-turf soils, and peat soils so beneficial for plant-growing.

Soils deficient in the utric ferment germs or bacteria are barren, while those which furnish conditions favourable for nitrification, such as those enumerated above, are always fertile.

The total quantity of nitrates formed in a fertile soil is considerable. Experiments have shown that they may range from 75 lb. per acre in an unmanured soil, to about 125 lb. per acre in a soil to which farm-yard manure has recently been applied.

But it may be well to note that the whole of this nitrogen is not available to our ordinary cultivated crops, for the reason that many of them only assimilate the spring or early summer nitrates, the principal growth and power of assimilation having ceased by the month of July.

Vegetable crops, such as Cabbage, Beet, Onions, Turnips, Carrots, Parsnips, Celery, &c., may still get hold of summer nitrates, but the nitrates produced in late autumn and winter are of little use, in so far as this applies to outdoor plants.

The spring nitrification of a soil alone is, as a rule, quite insufficient for the requirements of early-spring plants, hence the advisability of using some stimulating manure, if very early production of vegetables is desired. *J. J. Willis, Harpenden.*

PLANT NOTES.

GAZANIAS.

THE bright flowered *Gazania splendens* still finds a place in our flower gardens, although not to the extent it did formerly when employed in massing and as an edging plant. Of late years *Gazania nivea* has been introduced by the firm of Bredemeyer in Pallanza. The species was discovered in Bechuanaland and Griqualand by Dr. Burchell between the years 1811 and 1814, and named by Sander in the *Linnaea* as *G. pygmaea*. This species is a useful, effective plant, and for this reason was much employed in the flower-garden. One of the first to cross *G. splendens* with *G. pygmaea* was M. Lemoine, who used the first-named as the pollen parent. The result was *G. nivea latiflora*, a very large flower with rounded white-yellow rays, whose underside was striped with violet. The disc is dark yellow.

M. M. Dammann & Co., Naples, were fortunate in obtaining crosses with *G. stenophylla* as one of the parents; the results being plants with blossoms that vary in tint from milk-white to ochre yellow, and of a size much greater than *G. splendens*, and whose duration is from the spring to the end of the summer. The plants reach a height of 6 to 8 inches. The leaves are narrow, smooth at the edges, and occasionally divided; the upper side shining green, and the reverse side silvery, white with a green mid-rib.

The varieties are Bianca, sulphur yellow, changing to white with a slight violet spot at the base of the rays; Blondine, light chamois at the base, dark orange reverse side, white with dark violet stripe in the middle of each ray, and 3 to 3½ inches in diameter; Diana, flowers at the base chrome yellow, changing to yellowish-white at the tips of the rays, at whose base is a sharply outlined black patch; Nora, cream white with rosy lilac tips, and at the base of the rays sulphur yellow, and at the base a patch similar to that seen in the last named. *Wiener Illustrierte Garten Zeitung.*

THE CULTURE OF CATTLEYAS.*

(Concluded from p. 196.)

GENERAL MANAGEMENT.—I now draw your attention to the after-treatment, or the general management of the Cattleya-house, and to my mind, this is where we find the greatest difficulty in their cultivation.

Man (always interfering with something which he does not understand) lifts his puny hand to amend, or thwart the works of Nature, and huddles together in one little house, as slaves and prisoners, the free children of Nature, denizens of climes and conditions as diverse as chalk and cheese, and says to them, "Come now, dwell with us and be good, that we may enjoy your beauty."

In our Cattleya-house, we have plants from different parts and localities, which vary much in every respect; some are from the trees of high and lofty positions where they get much light and air, and less moisture; some are from trees of lower regions where of necessity light and air must be less, and moisture greater; others are found on rocks up the mountain side, exposed to the rays of the tropical sun and the blasts of trade-winds. A knowledge of the different habits of the various species is essential to the cultivation, in order that he may as far as possible, suit his treatment to their several necessities. But this, of course, can only be done in a very limited manner.

Then again, we have plants which flower at different times of the year, in fact at all seasons of the year; and some rest after they have made their growth, such as *Trianeia*, *Mossie*, *Schroderea*, *Percivaliana*, &c.; while others, such as *Warneri*, *gigas*, *guttata*, *Schofieldiana*, and a lot more, flower on the new growth as soon as it is complete, and rest after they have finished their season's work instead of in the middle of it. In our artificial treatment we endeavour to get them all to rest in the autumn and winter months, and by this treatment the last-named batch will require less care and less water at the roots, through the winter, than will the former, which have to maintain their flowers in embryo during the resting season. Again, they will of necessity start into growth again at different periods of the first half of the year, from Christmas to Midsummer. *C. Warneri*, being the earliest of this batch, will start first, and if great care be not taken in the management of the house and of this particular species, it will start its growth by Christmas, hence the short days and lack of light will militate largely against the solidity and flowering quality of its growth. Therefore the house should be kept as cool and airy as possible through December and January (compatible with the well being of those that are coming into flower) so as to prevent the growing of any until well into February, when we get longer days and more sunlight for their development. From this time the temperature and atmospheric moisture should be increased, and each section as they start into growth should have an increase of moisture at the roots. All Cattleyas, in their growing season, require an abundant supply of moisture both at the roots and in the atmosphere, and all the light and air that can be given with safety, avoiding scorching sun and cold draughts. The management of the Cattleya-house during the summer is not so difficult as during the winter, but even this should be attended to with great care, and be done under the personal supervision of one who understands the habits and requirements of each species.

Sometimes damage is done especially to late growing species by water lodging in the young growths, and thus causing them to decay. This to a great extent may be avoided by cutting the scaly sheath that envelopes the young bulb with a sharp knife, and turning it back so that no water can lodge there. This can be done without any injury to the plants. The syringe may be used with advantage during the spring and summer, but through the autumn and winter should be avoided.

It is useless to expect Cattleyas to flower satisfactorily unless they are well rooted, and have developed strong, well-ripened pseudo-bulbs. And even then it is not certain that they will do so, for I have found a few cases where, either through my mismanagement or ignorance of their requirements, or from some internal obnoxiousness on their own part, some Cattleyas have absolutely refused to flower, although healthy and strong.

INSECTS.

In the insect-world are to be found the enemies of Cattleyas, as well as of all other plants; but these plants cannot be regarded as dirty ones. If the atmosphere is allowed to become dry for any length of time, black and yellow thrip will be likely to make their appearance. These in minor cases should be washed off with warm soapy water, or any other insecticide. If the house should be affected badly, I should recommend a thorough steaming with tobacco-juice; this will be found very effectual, and will not damage the plants. But those in bloom should be removed to another house, if you wish to preserve the flowers. My mode of steaming is this. Put the tobacco-juice into any flat-bottomed vessel, such as an old milk-pan, or a galvanized tub, such as is often used for washing purposes. The liquid should not be more than from 2 to 3 inches deep in the vessel. Then have two or three ordinary fire-bricks put into the stove-hole-fire until they are red-hot, place the vessel in the middle of the house, put the red-hot bricks into the liquid, and you will soon have the house filled with steam that will destroy the thrips, but will not injure the most delicate growth.

* Read before the Members of the Devon and Exeter Gardeners' Association, recently, by Mr. George Lee, gardener to Miss Lavers, Upton Leigh, Torquay.

Sometimes white or brown scale will attack Cattleyas. This should be carefully watched for, and as carefully washed off with soapy water, using an old tooth-brush, or any other article that may be found most convenient. Another rather serious enemy to this class of plant is what is known among Orchid-growers as the *Cattleya-maggot*. Fortunately, the pest is not very plentiful, and where it is understood and dealt with rightly, it is not difficult to get rid of. But if through ignorance or neglect it is allowed to take its course, it will soon play havoc with the Cattleyas.

It is an ugly little dingy-coloured fly, not so large as a common house fly, which will flit about among the plants through May, June, and July, lighting upon the young and fleshy points of any root that may be pushing its nose out over the rim of the pot, or through the side of the basket. It will puncture a tiny hole with its sharp bill-like proboscis, and deposit an egg in the hole, from which (in course of time) will emerge a tiny grub-like insect; when full grown it is not so large as a common ant. But as soon as the larva is hatched, the roots show signs of something wrong, ceases to grow forward, changes to a dark brown colour, and forms a tubercular enlargement just around the insect. The remedy is a simple one; the fly does not live more than a few months, but they should be caught and killed as much as possible, and all the affected roots should be cut off and

the other is *Lawrenciana*, remarkable for its dark but brilliant colours. Each of these will often remain in bloom until midsummer.

In May, another fine old species will make its appearance, "*C. Warneri*," sometimes misnamed "*labiata*," introduced from Brazil in 1862; this species is not so well known, or so well grown as it deserves to be. It is the earliest of the summer-flowering kinds, and the form and colouring of its bloom are so striking that no collection of Cattleyas would be complete without it, and it flowers from the middle of May to the end of July.

Not quite so early to flower, but falling in with the foregoing about the end of May, we have another old and well-known species, "*C. Mossii*," introduced from Venezuela in 1836; this is too well known to need a description, but will help to keep the house gay from the end of May to the end of July or even into August.

Now we come to another, which may be termed the species of the genus, "*C. gigas*," introduced to this country from Colombia in 1872; although, according to Professor Reichenbach, it was first discovered in 1848 by Warszewicz, whose name it bore for years, until, in consequence of the enormous size of its flowers, it became known in English gardens as the giant, or "*gigas*." This, with four other species—namely, *C. Hardyana*, *Sanderiana*, *Dowiana*, and

display with the flowers, but by keeping the house moderately cool, and the atmosphere dry, and the flowers free from drops of water, they will last much longer in perfection; sometimes, nay, often, too long, for the benefit of the plants. Carrying the flowers to the very end has a tendency to weaken all Cattleyas, therefore the careful cultivator will see it is best to cut them from all weak and valuable plants long before they show any signs of decay.

In Orchid growing, more than in that of any other class of plant, it is impossible to work by hard-and-fast rules. The structure, condition, and situation of the houses must be considered, as well as other factors, in the shape of convenience, space, labour, &c. And the careful gardener, who has a soul for the beautiful in his profession, and an aim bent on success, will take these things into consideration, and will mould his actions, as nearly as he can, upon the principle of common sense, in the peculiar circumstances in which he finds himself, taking copious notes as he proceeds. At the right time, for the purpose, he will stand back (mentally at any rate), as an artist does, to view his work; and where failure is apparent, he will seek to amend his ways—but where success has crowned his efforts, he will thankfully take courage, and be wise enough to leave well alone.

SEED-DISPERSION.

In the interesting article on the plants observed near Jeur in the Deccan, by Mr. Marshall Woodrow, at the time of the recent eclipse of the sun (see p. 161), mention was made of a singular grass—*Aristida setacea*. The awns, it appears, have three divisions, and these get interlaced into the form of a ball, and are blown, with the seeds attached to them, from place to place, thus ensuring the distribution of the seed. Our illustration (fig. 79), taken from a photograph kindly sent by Mr. Woodrow, shows the way in which this beneficent arrangement is carried out.

POUCH-BEARING AND OTHER FERN VARIATIONS.

In connection with the enormous number of varietal sports which Ferns, especially our British species, afford in the wild state and under cultivation, there are certain peculiarities which are deserving of especial notice which may afford some clues to that under differentiation which distinguishes species from mere varieties, and genera from one another. At present we are in ignorance regarding the influences which induce sports, and it is impossible for us, therefore, to indicate any specific theoretical lines; and all we can do is to classify and record them, in the hope that the laws which rule them may some day be revealed—just as a heterogeneous mass of statistics often discloses curves and coincidences from which quite unexpected information is obtained. One of the most singular forms of eccentric variation is that in which the frond or leaf, instead of tapering more or less to a point, abruptly terminates in a pouch, from which the central rachis or rib projects nakedly, and tapers off into a sort of thorn, or the pouch may be absent, and the frond or leaf apparently as squarely cut off as with a pair of scissors.

Odd, however, as this "sport" is, there are marked examples found in Ferns; moreover, it is an established characteristic of the leaves of the Tulip-tree (*Liriodendron tulipiferum*), and in a modified form in some varieties of *Croton*. In British Ferns we have *Lastrea montana truncata*, in which the type of the fronds, as well as the side divisions or pinnae, are so characterised, the whole frond having an artificial appearance, with its square ends. In *Scolopendrium vulgare* vars. *periferens*, *cornutum*, and *bicornutum*, there are numerous forms of this singular character, *periferens* bearing large or small pouches behind the frond; *bicornutum*, sometimes bifid, whence the name, one in front of the frond; and the various forms of *cornutum*, having the end of the frond rounded abruptly off, and the midrib projecting from the front or the back, according to the particular variety, but never indiscriminately on one plant. The best form of this last class is one found by Mr. S. Wellaston, son of Mr. G. B. Wellaston, one of our greatest authorities on British Ferns. This is of full normal size, with the robust fronds neatly rounded off, the midrib projecting from the centre of the arc as a blunt hook; on the back the sori radiate exactly like the figures of a dial, whence the name of *S. v.*

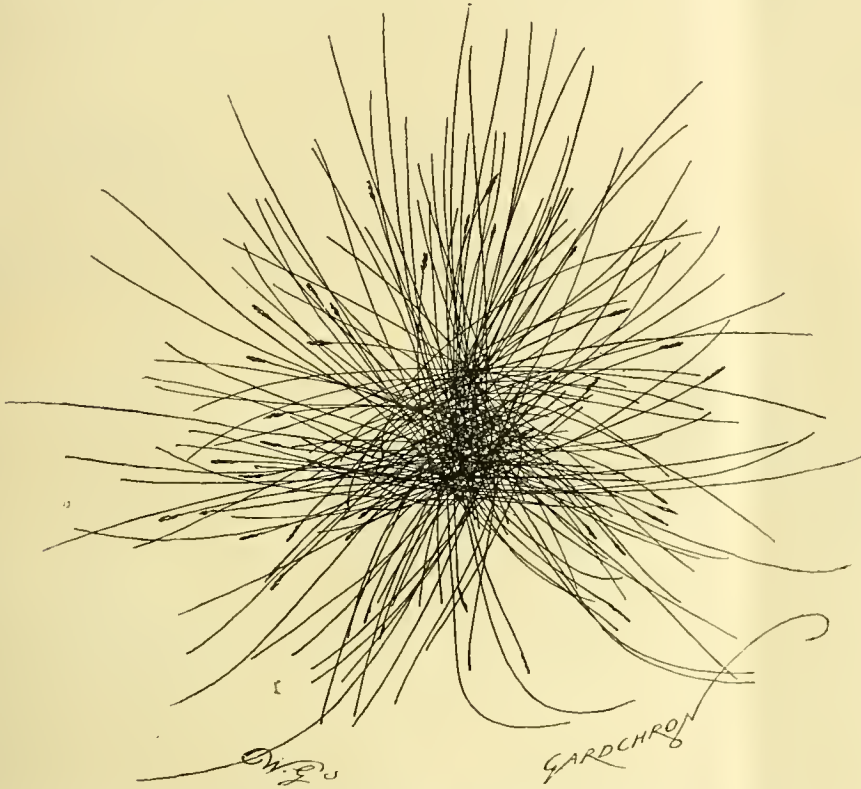


FIG. 79.—AWN OF *ARISTIDA SETACEA* FORMING A BALL, BY MEANS OF WHICH THE SEEDS ARE DISPERSED BY THE WIND.

burnt at the first sign of the larva's existence. By careful attention, the house can soon be cleared of this foreign intruder.

SELECTION OF SPECIES.

I will give a list of those species which, from my experience, I consider to be the best and most useful to keep up a succession of flowers all the year through, but I could not guarantee this with one plant of each sort; but half-a-dozen of each, under proper treatment, would ensure a goodly display of these grand flowers from one end of the year to the other.

To begin with the new year, we have one, though not so large as some of the species, yet nevertheless must rank high among the choicest and most useful of the genus, *Percivaliana*, introduced to commerce about twelve years ago from Venezuela, and named in honour of Mr. R. P. Percival, of Birkdale, Southport. If the earliest plants of these have been subjected to a gentle forcing through November and December, they will be in full flower a week or two before the new year commences; and if the remainder of the batch be brought on in close succession, they will carry us on to the end of March.

Then, long before this, we have the early bloom of another old and well-known and much admired species, with a lot of beautiful varieties, *C. Trianaei*, introduced from Colombia in 1865. This is a beautiful and useful spring-flowering species, which will carry us on from February to May, or even beyond. And there are two other species that bloom about the same time, both of recent introduction, but of such value that I cannot omit the mention of them in this list. One is *Schrodora*, remarkable for its delicate colouring and sweet fragrance;

auras—undoubtedly forms the grandest group of plants that can be found in cultivation. They form the five best varieties or species of the *gigas* group. The combination of colouring is so curious, and yet so beautiful, so bold and bright, yet so delicate; the massive grandeur of their flowers, often 10 inches across, is so conspicuous when mixed with other flowering plants, that it defies description, and has no equal among the occupants of our plant-houses.

This group may be had in flower from the middle of June to the end of October, while *bicolor* and *Loddigesii* will add a pleasing variety during August and September. As the earliest of the tall-growing section, to be followed by a splendid set of the same section, such as *guttata*, *granulosa*, *Schofieldiana*, and *Bewringiana*; the last named is of recent introduction from Central America, and of great beauty. They are all autumn-flowering, and will be gay until Christmas.

The last I have to mention is second only to the *gigas* group—the true old "*C. labiata*," Swainson's first discovery of eighty years ago, but which has been re-introduced, and written and talked so much about these last three or four years. It is undoubtedly the best winter-flowering Cattleya, and will keep the house gay from November to January, when *Percivaliana* will take up the strain, and commence the new circle again.

Just a word about the flowers. The atmosphere of the house in which the Cattleyas are grown is much too moist for the flowers to remain long in perfection; therefore, where there is a good collection of Orchids, there should be a house set apart into which they can be removed when in flower. By this arrangement you are not only able to make a better

cornuto radiosorum has been suggested. As spores are produced in myriads, sowings have been made by Mr. Wollaston and myself; but, singular to relate, purely normal plants have resulted. On the other hand, and this brings us to another of the facts I wish to record, this truncate character seems to be usually accompanied by added reproductive vigour, forming precisely the converse case to the plumose varieties, where excess of foliaceousness renders them more or less barren. In my fernery I find *S. v. periferens* and *bicornutum* constantly springing up in the crevices as chance seedlings, and one of these has gone a step further and developed two pockets on the basal lobes as a constant feature. In a wild state, this form (*periferens*) is recorded by Col. Jones as existing in quantities, being, indeed, the prevalent form in a wood near Portishead, Gloucestershire, which, of course, points to the same conclusion as the numerous chance seedlings in my fernery. This feature, furthermore, is so fixed in the strain, that some successful crosses have been effected, one conglomerate form raised by Mr. E. J. Lowe having little pockets and thorns on all the numerous ramifications of the other ramose parental variety. In the case of *L. montana truncata*, which belongs to a species difficult to raise from spores, there are no instances of chance seedlings under culture; on the other hand, a very large number of wild examples have been found in widely-separated localities. Mr. G. B. Wollaston has found it repeatedly in Kent and elsewhere, but I have recently found some examples in different parts of Scotland; and while hunting in the English lake districts, one of our party found a good example, and evoked the remark from an "old hand" that every beginner started there by finding *L. montana truncata*, the presumption being either that the normal form often sports independently, or that the spores of a few originals have produced widely-spread typical offspring, a supposition supported by the previously-cited cases in *Scolopendrium*. The Lady Fern has yielded one example, *A. f. f. excurrens* and *Lastrea filix-mas* another; these, however, are rare.

In exotic Ferns, the curious little *Pteris serrulata Leyii* exemplifies the type; this originated under culture, and comes freely from chance-sown spores. Singularly variable as the Shield Ferns (*Polystichum*) are, I do not know of a distinct form of this type, the nearest approach being the various finds of *grandidens*, and some truncatums, properly so-called. None of these, however, have the abruptness or the pouch, and the thorn where present is only seen at the apex of the frond as a blunt projection. In brief, there are thus two species—*Lastrea montana* and *Scolopendrium vulgare*—of totally different habit and appearance, which are nevertheless subject to frequent sporting in this rare fashion, while in all the rest of the species the examples are very few. The same confined range of certain peculiar types is also exemplified in the "cruciate" varieties, in which the pinnae, or side-divisions of the fronds, are duplicated, or as Mr. E. F. Fox described it, the two basal pinnules of the pinnae are abnormally developed, the rest being aborted, the result being the formation of a series of crosses from bottom to top of the frond. This type is only seen in two species—*Athyrium filix-foemina* and *Polystichum angulare*—as wild finds, though Mr. E. J. Lowe managed to transmit it by hybridisation to a form of *P. aculeatum*. In *Athyrium* we have first and foremost *A. f. f. Victoriae*, where it is developed to the utmost. *A. f. f. Fieldæ*, *Frizellæ*, and *proteum*, are modifications of it. These peculiar types of variation are, with few exceptions, such as the Tulip-tree and *Crotons*, confined to Ferns. This in itself is a curious fact, when it is considered that Ferns and their allies were certainly the progenitors of all other land-plants, that such marked tendencies in them should now so rarely crop up outside them. The tasselling of so many species of Ferns, and which has been found to characterise nearly all our British species, is still more markedly absent in other plants; the only instance to our knowledge of true creasing presenting itself curiously enough in *Asparagus plumosus*, popularly, though erroneously, called the

Asparagus Fern. The crested form of this has bunch tassels on all terminals in Fern fashion, the assumption of the Fern type being thus correlated with the power of varying still further on Fern lines. Fasciation, as seen in Lilac stems, *Celosias*, and many other cases, is probably akin to this phenomenon, but a study of Fern tassels shows the distinct difference that the multiplication of the special cell which leads to the formation of the tassel commences after the main and secondary, or even the tertiary rachides have made considerable growth as simple ones. It therefore represents an independent branching on their part, and not as in cases of fasciation proper, a cohering together of originally numerous growths so as to form a fascies or bundle. In *Pteris serrulata* var. *Applebyana* the plant indeed apparently first perfects its fronds normally, no division at all appearing, but this done, the special cells commence to form dichotomous filaments, which finally produce large handsome tassels. One *Athyrium* in the writer's collection carries this creasing to the fifth degree in a perfectly symmetrical regular fashion, and it is certainly very wonderful to consider the subtlety and thoroughness of the influence therein which determines in every division a certain length of simple rachis and a multiplication of the apical cells at a precise and definite period of its extension. *Chas. T. Druery, F.L.S., V.M.H.*

FORESTRY.

DEGREES OF THINNING.

THE thinning of Fir woods, and those of Scots Fir in particular, becomes the more important the further north we go in the United Kingdom. Our Scotch brethren are particularly alive to the importance of keeping their woods sufficiently open to impart to individual trees that stoutness of stem which most effectually withstands the force of gales which sweep so frequently over the country; and if this condition were the only really important one, differences of opinion on the subject of thinning would be less frequent. But, as already mentioned, quality of timber ought to be of equal importance in the eyes of a good forester as the actual bulk of individual trees. While a great deal of home-grown Scots Fir may be converted into railway sleepers and other articles in which fine quality of timber is of little importance, there is still considerable scope for the utilisation of fine timber in buildings and other structures in rural districts. The majority of farmsteadings in Scotland are built and repaired with home-grown timber; but it is, nevertheless, a well-known fact, that the quality of a very large proportion of this timber falls far behind that of imported Canadian or Swedish timber. No doubt a great deal of the prejudice against the former arises from the unseasoned condition in which it is too often used; whereas, this fault is rarely if ever found in foreign timber.

But over and above this, it cannot be denied that the home-grown article is, generally speaking, of a far coarser and more knotty description than its foreign rival, although equally durable and resinous. The disadvantages of this knotty condition are familiar to every carpenter and builder, and owe their origin almost entirely to the system of thinning practised in the early life of the plantation in which the timber is grown. The Scotch method is based upon the principle of giving each tree in the plantation a sound constitution before it enters upon that struggle for existence which plays so important a part in biological history. The result of this method undoubtedly gives us a plantation with a large proportion of stout well-rooted trees, but the length of time which elapses before close order is arrived at enables the lower branches to attain a size which means ugly knots being left in the timber when they are finally killed off. The more scientific method employed by continental foresters avoids these knots by close planting at the outset, and leaving the trees to practically thin themselves, the forester simply removing what are no longer taking any active part in the growth of the wood.

Coarse knots on the lower part of the stem are thus impossible, as the branches are killed off when quite small, but a large number of trees become weak and spindly in the process, and great care must be exercised to prevent gaps being made in the plantation when weeding out suppressed trees, or the wind soon plays havoc with the crop.

In large and well-organised forests, young and middle-aged plantations are always sheltered from prevailing winds by older parts of the wood, and by the time any particular section has to bear in its turn the force of the wind unprotected, it is composed of matured trees which are shortly to fall before the axe. In the ordinary plantations of Great Britain no organised attempt is made to protect them from wind in this way, and the forester relies more upon the root-hold his trees have on the soil, than upon measures which seek to avoid the full force of the wind being exerted upon the young and immature plantations. Herein may be found the rock upon which Continental and British foresters are apt to split, for the latter know only too well that well-drawn-up woods, similar to those found in Germany and other parts, are apt to suffer greatly in severe gales, exposed as they frequently are to its full force. But while both systems have something to be said in their favour, the adoption of one in preference to the other should depend upon surrounding circumstances. In sheltered situations the Continental method can be safely adopted in this country, and with equally good results. In exposed sites, and thin soils, on the other hand, small plantations of Scots Fir are probably best thinned on the lines usually adopted by Scotch foresters, although the quality of the timber so produced may not be all that can be desired. *A. C. Forbes.*

(To be continued.)

MELTON CONSTABLE.

AT Fulmeston Wood we saw what is probably the most magnificent collection of Coniferae in England. Rain was then falling heavily, and the long grass was completely saturated; but the sight of such a succession of noble trees, perfect in shape and form, and some of them throwing out boughs of such length as to make an approach to the trunk a somewhat difficult operation, led us to forget any temporary discomfort resulting from the disagreeable weather. The planting of these trees was undertaken merely from love of arboriculture, and not with any idea of reaping profit. The wood is 211 acres in extent, and is well drained, and the Coniferae are protected by a pre-existing crop of Larch and other timber trees, which have been felled from time to time to promote their growth without reducing their protection. Planting has been going on gradually ever since 1851, when the earliest of the Coniferae were placed here. Some that were planted not more than twenty-two years ago have reached a good height already, and in almost every instance the growth has been very rapid. A blown Silver Fir, which we saw on entering the wood, was measured, and was computed to contain 462 cubic feet of timber. But that is only by way of parenthesis. Pursuing our way through the wood, we come up to two specimens of *Abies Webbiana*, planted in 1851, and one of which has a quarter girth of 18 inches; *A. nobilis*, 21 inches, over 70 feet high; *Sequoia gigantea*, planted in 1857, 26½ inches, over 100 feet high; *Thuja gigantea*, 9 inches, 50 feet high; do., 15½ inches; do., 15 inches, 70 feet high; *Picea canadensis*, 22½ inches, top broken off by wind; *Tsuga canadensis* (Hemlock Spruce), 9 inches; *Pseudo-tsuga Douglasii* (American Red Fir), 16½ inches, about 80 feet high; do., 20 inches; do., 20½ inches (all planted in 1852); *Tsuga* (Californian Hemlock Spruce), 14 inches, 80 feet high; do., 14½ inches, 90 feet high (both planted in the early "fifties," and very fine specimens). There is a group of these majestic trees which we named the "Albert group." A fine avenue of *Abies nobilis* claims brief attention, and then an avenue of Douglas Firs (Rocky Mountain type), planted twenty-two years ago; but all the larger trees of this species were planted in 1852, as already suggested. A close belt of Coniferae on an exposed side of the

wood has created some difficulty for Mr. Munro. Formerly it was a sort of copse, which had to be cut down periodically, and when that was done, it left the main part of the wood open to injury. So the Hazel was cleared out, and *nobilis*, *Douglasii*, *Lawsoniana*, and others were planted in pretty closely with the view of giving permanent shelter. Now, however, they have grown so well, that Mr. Munro does not wish to part with any of them, and does not know which to sacrifice. Some of the *A. nobilis* were bought in pots at £5 apiece, and planted in 1851 or 1852. One of these has at present a quarter girth of 19¾ inches, and is 95 feet high. As regards the *Pseudo-tsuga Douglasii*, one of them is known to have grown up 6 feet 2 inches in two years. The only specimen of *Pinus Lambertiana*, the tallest of Pines, has a quarter girth of 16¾ inches; it was planted in 1851. This species does not thrive here. Two very beautiful trees standing together, and both planted in 1861, engrossed attention for some minutes. The one is *Abies Lowi*, and the other *A. grandis*. The latter is 17½ inches quarter girth, and 90 feet high; and the former 18½ inches

creased by sowing the small offshoot-corms, which, when the plants are healthy, are produced in plenty, but are more safe left in the pots or open soil than lifted and stored, as they are apt to perish by dry-rot. Seeds also may be collected and sown at the same time as those of the *Gladiolus*, good flowering corms being formed in two years in most cases.

Since the energetic hybridist, Lemoine, has taken it in hand, the *Montbretia* [or *Tritonia*, Ed.] has almost developed into a florist's flower, the resulting varieties being of all shades of colour, from the palest yellow, through amber and orange, to blood-red and vermilion, while the hardness of the hybrids exceed that of the species, so that in favoured spots, and in light soils, they may be left in the borders the winter through, and only disturbed when the herbaceous borders are rearranged in the spring, when the clumps may be divided and replanted.

They are all useful for cutting, a matter of some moment in this age, and like the *Gladiolus* and other Irises, the flowers open successively from the base to the point of the spike when placed in fresh water. The most distinct and useful kinds are "Eldorado,"

We are equally independent of the Dutch growers for our supply of Snowdrops, both single and double, these being grown in great quantities in the Eastern counties, in addition to the lovely little Siberian Squill (*Scilla sibirica*), and the Glory of the Snow (*Chionodoxa*), all of which are increased easily by selecting the largest and strongest bulbs or corms for use, and planting up all the rest to grow on till they attain to a flowering strength or size.

The handsome group of bulbous flowering plants known as the *Tigridias* are quite hardy in the south and west counties, and should be allowed to flower and form their seed-vessels; then they may be taken up, cleaned, and the bulbs divided, reserving the largest and thickest for planting up or for potting and lining up the small side-pieces, which, with generous treatment in regard to mulching and watering with liquid-manure during the growing period, will make very good flowering bulbs the first year. I may here note that when bedding these out on stiff wet soil, it is advisable that the bed be raised above the level of the surrounding ground, as this prevents the soil becoming too wet in the winter, when a few degrees of frost will be fatal. Also a little dry rubbish or cocoa-refuse spread to the depth of 2 or 3 inches over the bed, is useful as a protection from frost.

Experience.

(To be continued.)

TULIPA PULCHELLA.

THIS, another of the series of little known plants re-introduced to Europe by Mr. Siehe, German Consul at Mersina in Asia Minor, which we have been enabled to figure during the last few months. *Tulipa pulchella* is a plant of dwarf growth, indigenous to the alpine and sub-alpine regions of the Cilician Taurus, where it is found growing among loose stones. The flowers are of a deep rose colour, and possess a yellow spot of a star-like shape at the bottom. Our illustration shows the plant of half its natural size.

THE LOST ONION TRADE.

Is it possible that our market-growers and farmers are allowing the French farmers of Brittany to monopolise the sale of this famous esculent in England? This is a question that came to my mind when reading a very forcible article in the *Daily Mail* of February 12, with the heading, "In Search of Trade: A Lesson. 'Made in France' this time." It says, "The presence of the forty-seven Breton Onion hawkers on the *Channel Queen*, wrecked off Guernsey recently, draws attention to a business that is increasing by leaps and bounds, to the detriment of the British farmer." Among other particulars, it stated that from 15,000 to 20,000 French (?) peasants visit British annually with the object of selling Onions grown upon farms in the Departments of Finistère, Cotes du Nord and Ile et Vilaine." Originally these Onions were sent wholesale to Covent Garden, but the prices realised not being satisfactory to the growers, other means had to be resorted to, to make the trade remunerative. This took the form of chartering two sailing vessels about to return to North Wales, which they loaded with some of the best of their produce, about a dozen farm hands and two or three sons of the shippers accompanying the cargo, which was disposed of by hawking retail, at a clear profit of over 50 per cent. above that obtained previously at wholesale rates. In the ensuing summer shipments were made to Cardiff and Bristol, and similarly disposed of. This start was made some eight or ten years since. "Year after year other districts have been exploited, until to-day there are French Onion depôts in most of our ports and large inland towns. Lately the growers have formed several limited companies, under whose fostering care the industry is likely to be still further increased upon the same lines." Surely if Onions can be grown in the North of France and be brought here and sold by the growers at remunerative prices, our English farmers in the southern counties should be able to compete with them. *C. Herrin, Dropmore.*



FIG. 80.—TULIPA PULCHELLA.

(Colours of the flower deep rose, with a white star at the bottom of the cup.)

quarter girth, and 80 feet high. Probably the largest *nobilis*—at least, the largest noticed on our tour through the wood—is 26 inches quarter girth, and is about 75 feet high. This was one of the plants bought in pots at £5 each. An *A. Piosapo* measured 11 inches quarter girth, and has a height of 42 feet. Only one specimen of *Libocedrus decurrens* was observed: its quarter girth is 14 inches. Amongst the other specimens noted were—*Sequoia* or *Taxodium sempervirens*, 14 inches, 65 feet high; *Cupressus Lawsoniana*, 15 inches, 75 feet high; a group of *Thuja Lobbi*, nearly 90 feet high, with a girth of from 15½ inches to 16 inches; *Cedrus Deodara*, 11½ inches, 75 feet high; *Thujopsis borealis*, a very fine specimen, very graceful and symmetrical; and *Cryptomeria japonica*, also very fine. All the underwood hereabouts was felled about ten years ago, and the younger *Coniferae* were planted wherever a suitable spot was found. *Transactions of the English Arboricultural Society.*

METHODS OF PROPAGATION.

(Continued from p. 165.)

BULBOUS FLOWERING PLANTS.—*Montbretias*, *Tritonias*, *Watsonias*, *Ixias*, and *Sparaxis*, as well as the brilliant little *Anomatheca*, may all be rapidly in-

Etoile de Feu, *Fantaisie*, *Feu d'Artifice*, and *Transcendant*; while in the variety named *crocosmiflora*, the delight of all florists, has been attained, namely, a double form, which its fortunate raiser foretells, is to become the progenitor of a new race of double flowers sure to come into fashion!

The *Crocus*, another well-known cormous plant, has for many decades been grown for the trade in the rich, light soil of Lincolnshire and the adjoining counties, where the favourite early-flowering yellow is cultivated and sold by the million; and the so-called *Scotch*, and a striped form named *C. versicolor*, in less quantities. The increase of these is a simple matter, each corm when it flowers dies off, and leaves a numerous progeny of small cormlets at the base of the leaves; some of these attain to flowering strength, but the majority are only serviceable to quarter up, and grow on for the next season.

The bulbous *Iris* tribe, commonly called English, Spanish, and Persian *Iris*, may all be propagated from the small side bulblets, which may be broken off at the time they are lifted and planted up in September or October. These should not be allowed to flower the first year, but by the second season they will have made full-sized bulbs which will be fit to sell, or plant up for flowering the following season.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

Potato Planting.—The first three weeks of April afford the best period for planting the main crop of Potatoes, and in deeply-dug light soils the sets may be dibbled in 6 inches deep, affording a space of 30 inches between the rows, and 10 inches from set to set. [Or they may set in shallow basins excavated with a big draw-hoe just as quickly, and the tuber touching the soil everywhere, of course care being taken to cover them with soil with the same tool. Ed.] Wet heavy land should be manured, dug, and planted at the same time, the sets being laid on the manure at from 10 to 12 inches apart, and at 30 inches from row to row. If the sets are rather large, they may be cut in halves, each half having not less than three strong buds. Smaller sets should not be cut, and have only a few of the eyes removed. Any crowding of the shaws result in a loss of weight in the crop. A change of seed should be obtained every third year.

Kidney Beans.—A sowing may now be made on light soil on a south border, and means taken to protect the plants when above-ground, from injury by frost. Another sowing may be made about April 30. Beans should be sown in drills 2 inches deep, running north and south, and the drills may be 1½ foot apart for the dwarf varieties, to 2 or 2½ feet for Canadian Wonder. The new climbing French Bean and the white-podded Butter-beans may be sown at the end of the month, and both varieties should occupy a warm site.

Cabbage.—Early-sown Cabbage plants for summer use may now be planted, and the plantations of August-sown Cabbage moulded up with the hoe, drawing the soil up to the lower pair of leaves. A sowing may be now made for providing heads for cutting in early autumn. Conve Tronchuda may now be sown.

Carrots.—The seeds for the main crop should now be got into the ground without delay. The Carrot-quarter should have been plentifully dressed with decayed manure, lime, and, if wireworm be present, slightly with gas-lime. It should now be dug over half a spit deep and well tilled, and then roughly raked, to render it level, and take off the biggest stones, &c., and be trodden evenly all over, or rolled with a wooden roller. The surface should then be finely raked and made smooth, and drills drawn 1 inch deep and 9 inches apart. The seeds, if new, should be sown thinly, after mixing them with twice their bulk of damp sand, and be covered with the fine soil to the depth of half an inch. If wireworm and the Carrot maggot infest the soil, the best method is to sow Carrot seed frequently at the end of the spring and in the early summer months, choosing varieties with short roots, such as Dutch Horn, Carentan, &c. Late sowings of Carrots are not so subject to be infested as early sowings.

Vegetable Marrows.—Sow seeds singly in small flower-pots, and place in a warm frame, so as to have plants for placing under hard-lights or frames in May. These early sowings should always be provided with slight hot-beds of stable-dung, or dung and tree-leaves, placed beneath the plants.

THE FLOWER GARDEN.

By H. WAITERS, Gardener, Eastwell Park, Ashford.

Bulbs which have been Forced.—Instead of the gardener throwing these bulbs to the rubbish-heap, as is usually done, it is better to gradually harden them off, and afterwards plant them in spare ground till the foliage ripens naturally, and then clean, dry, and store them. Clumps of Lily of the Valley may be permanently planted on the north side of a wall. It will be three years before the buds that form on the roots that have flowered will themselves flower. Bulbs of Narcissus, Scillas, and Snowdrops should be stored till early autumn, and then planted wherever required in the garden or pleasure grounds.

Spiræas.—The varieties *astilboides*, *palmata*, and *japonica*, if they have been forced, should be similarly hardened off, and afterwards planted in the reserve garden in lines to recoup their energies, which they will do in two years, and be then again fit for being forced. A partially shady spot in moist loamy soil is best for them, and they will require frequent applications of water in hot weather. The same remarks apply to Solomon's Seal, *Dielytras*, and *Moutan* *Pæonies*, and many other subjects, both hardwooded and soft, which have been forced into flower.

Annuals for Bedding-out.—Seeds of Asters and Ten-week Stocks, and numerous species and varieties of

annuals, should be sown this month; the Asters and Stocks in boxes, or in frames, the seedlings to be pricked out when large enough. Slugs are very destructive amongst these plants, and every precaution must be taken against these creatures. The seed should be sown thinly, and pricking done, especially that of Stocks, when two true leaves are made, these plants being peculiarly liable to damp off when crowded together, and the air in the frame is close. Other annuals may be sown out-of-doors this month, due consideration being required in deciding upon their position in accordance with the heights of the various subjects, and the places they are intended to occupy. Choose a fine still day for the sowing operation, and when the ground is in good working order. If lines of plants are required, shallow drills should be drawn with a small hoe, and the seed sown thinly; and if broadcasted, let the ground be finely and evenly raked over, assuming that it has been manured and dug, scattering the seeds evenly over the surface, and raking them in, but do not leave the ground too fine on the surface, or it will become caked, and the young plants have a difficulty in coming through. Thin out as soon as the plants are large enough, if they are likely to become crowded. The chief secret in obtaining satisfactory results from annuals is to allow them space for full development.

Poppies.—For a brilliant display at a small cost the Poppy is the plant, par excellence, for the purpose, and the Shirley varieties, with their delicate shades of colour are very effective, and in consequence very popular. For brilliant colour the Danebrog Poppy is unsurpassed, the flowers being of a brilliant scarlet colour, and each petal has a white blotch which, when the flowers are fully expanded, forms a white cross on a scarlet ground, and from its similarity to the national colours of Denmark, it is usually known as the Danish Flag Poppy. *Papaver nudicaule*, the Iceland Poppy, belongs to a dwarfier class, and is very hardy, with flowers of white, yellow, and scarlet, excellent in the garden, and for table decoration in the cut state. Of other varieties, *P. Mephisto*, with fringed flowers; *P. glaucum* (the Tulip Poppy), flowers of a very deep scarlet; *P. bracteatum*, red with black blotches, very showy; *P. orientale*, deep scarlet with black blotches; *P. Snowdrift*, pure white with fringed petals; and *P. fimbriatum*, with, as its names implies, fringed flowers produced in great abundance, and in endless variety of colours, are among the finest. Never allow the Poppies to become crowded, or the flowering season will be short, and in case of a long spell of dry weather, the plants will entirely collapse.

General Work.—Continue the pricking-off of all kinds of bedding-plants. Propagate any plants of which the desired number is not yet obtained, such as *Lobelias*, *Coleus*, *Alternantheras*, *Iresines*, *Verbenas*, and *Meibryanthemums*.

HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Pear-trees on Walls.—Before the flowers have time to expand, curtains of doubled fish-netting, canvas, frigi domo, or similar material should be hung in front of the trees; if fish-netting, it may remain in position day and night as long as protection from frost is needed, but the thicker materials must be withdrawn during daylight, which may easily be arranged by fastening the curtains to the top of the wall, with poles leaning against the wall under the coping at a distance of 10 feet apart, and at every second pole fastening a piece of stout string on the top of the wall, letting it come beneath the curtains to the bottom, and returning it on the other side to the top again, by means of which the coverings can be quickly drawn up or down.

Tomatos.—Provision should be made for filling vacant spaces on south walls with Tomato-plants, good returns in fruit being obtained from such plants in summers of average warmth. The Tomato may be grown successfully in the open quarters, training them on one to three stakes per plant. Plants for these purposes should be grown under glass until they are 2½ to 3 feet high with fruit set; and the plants will now require shifting into 6-inch pots, which will serve them till they are set out in the middle of May. Let them be afforded a rich light soil, such as light turfy-loam two-thirds, leaf-soil one-third; and keep each plant to one stem, the point of which should not be stopped, but all side-shoots as soon as they appear should be removed. Provide a minimum temperature of 55° by night, and let the day rise to 70° before air is afforded, and do not shade the plants at any time, but endeavour to keep them sturdy and short jointed. There is now a

great choice of varieties adapted for outside culture, and only such as produce middling-sized fruit that ripens rapidly should be chosen, large or coarse-growing varieties being almost worthless in ordinary summers.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorking.

East Indian-house Temperatures.—April is an anxious month for the Orchid cultivator, as the changes in the weather are generally so numerous, it is next to impossible to keep constant the atmospheric conditions of the warm houses. Careful attention to shading, ventilation, and heating, however, will prevent very serious fluctuations. The hottest or East Indian-house needs the greatest care in these matters, because many of the plants are growing fast, and they must suffer no check. Little ventilation will be required in this house at present, except perhaps at noon, when the atmosphere is comparatively dry. On bright days, when the ventilators are open, and the sun becomes obscured by heavy clouds, close them at once. The blinds need not be worked up and down at every trifling change in the weather. Immediately the sun raises the temperature 6° or 7° drop the blinds, and keep them down on all very changeable days, but when there is no fear of the plants becoming scorched keep them up. At this season of the year scorching is very possible, and it is much safer to give too much shade rather than too little. It is difficult to shade properly the numerous species which grow in this house with special care to each group. Such species as the delicious *Calanthes*, *Thunias*, *Cycnoches*, *Catasetums*, *Mormodes*, *Cyrtopodiums*, *Dendrobium Schomburgkia*, *Grammatophyllums*, *Epidendrum*, *Laelia rubescens*, *Vanda corulescens*, *Brassavola venosa*, &c. should be placed at one end where they may receive the least shade, whilst *Phalenopsis*, *Aerides*, *Angræcums*, *Cypripediums*, *Bulbophyllums*, *Cirrhopetalums*, *Bolleas*, *Pescatoreas*, *Zygopetalums*, *Vanda Sanderiana*, evergreen *Calanthes*, *Eulophiella*, &c. should be arranged at the opposite end where greater shade will prevent the foliage getting injured by sunshine.

The Cattleya-house.—The blinds on the Cattleya and intermediate-houses must be dropped whenever the leaves of the plants begin to feel warm to the hand, and they should remain down until the sun has passed off the roof, or in houses with a western aspect until it has lost most of its power. If lath blinds are in use in these two divisions, it is advisable to put extra shading under them for the protection of such plants as *Vandas* of the tricolor and *suavis* section, *Cypripediums*, *Oaciliums*, *Lycastes*, *Cymbidium*, and the warmer section of *Masdevallias*. The bottom ventilators of these houses should be opened gradually when the outside temperature is above 45°, and wide open when 55°. In lofty houses, where the roof-ventilators are some distance from the plants, fresh air may be admitted freely without the use of the bottom ventilators.

Odontoglossum and Masdevallia-houses.—Drop the blinds on these houses immediately the sun touches the plants, and keep them down so long as the sun shines upon the roof. After several years of practical experience with the lattice-wood blinds, I find that for lean-to houses having a northern aspect these blinds are in every way satisfactory. For span-roof houses running north and south, with an east and west aspect, they are not quite so suitable; the extra light admitted through the blinds causes the foliage to become far more of a bronzy-red than is desirable, and I find the leaves so coloured do not last on the plants nearly so long. It is a good plan to lay some thin garden-mats upon the roof-glass under the lath blinds, the blinds being raised 6 or 8 inches above the roof, a cool current of air passes between them and the mats; by this means a very suitable temperature is maintained for the cool-growing *Odontoglossums* throughout the hot summer months. The blinds at the present time are let down immediately the sun begins to shine upon the roof, and as soon as it causes the inside temperature to ascend to 60° the mats are put on; they are taken off from the east side when the sun ceases to shine upon it, and from the west side about an hour before the sun goes down. Where the side lights allow the sun to shine upon the plants or their pots, they should be covered outside with thick tiffany or some other material. In giving air to these cool houses, the bottom ventilators should be slightly opened when the outside temperature is 40°, and widely opened when 50°. When the air is calm and mild, a little top air will be beneficial. Before damping down in the afternoon,

we close the top ventilators, leaving the bottom ones open in degree, according to the weather outside; by this means a suitable temperature is maintained throughout the night. In each division it is advisable to allow the atmosphere to fall 6° or 8° below saturation-point for several hours during the middle of the day; this will allow the plants to discharge all superfluous moisture, which, if retained, would prevent sound, durable growth.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Ivy-leaved Pelargoniums.—Young plants now rapidly growing, will be in need of close attention as regards shifting before they become root-bound. Let the points of the shoots be nipped occasionally to ensure bushy growth, as the plants are apt to run away thin if stopping be not resorted to. Spring-struck plants will require re-potting, and old plants, if growing in an intermediate-house, will now be coming into flower, and should be removed to a greenhouse or cool conservatory. These plants show to advantage when grown in baskets, three or more according to the size of the basket, being placed therein in good turfy loam, one sixth part decayed manure and some silver-sand. Such baskets should be lined with wood-moss, and when planted, they should be placed in an intermediate-house. The earlier-made shoots should be pegged down, or otherwise secured to the sides of the basket, and have their points pinched out, the resulting shoots being allowed to hang unrestrained. These plants are valuable climbers, making a brilliant display if afforded a light, airy position.

Zonal Pelargoniums.—Plants, if strong and well-rooted in small pots, will soon begin to show flower if repotted in 5-inch pots, and stood close to the glass in a temperature of 50° to 55° by night, and 10° more than this by day, affording plenty of air on fine days. It is not too late to insert cuttings in order to raise plants for winter-flowering, but the shoots must be strong and sturdy. They can be placed in a warm house in a light position, where they will soon strike.

Caladiums.—Those that are growing freely may be finally repotted in light rich soil, which should not be made very firm; the plants requiring abundance of water when growing freely should have excellent drainage. They must be shaded from strong sunshine, otherwise all the light possible should be afforded to bring out the colours of the leaves.

Gloxinias.—Plants making free growth may be shifted into their flowering-pots in a compost of loam, dry cow-dung rubbed through a fine-meshed sieve, leaf mould, and a considerable proportion of silver-sand. Young seedlings may be pricked off directly they are fit to be handled into small pots or pans, and if late-flowering plants are desired seed may be sown.

Gesneras.—Shake the old soil from the earliest flowering species of these and start the tubers singly, or two or three of them together in one pot, in a Cucumber or Melon-pit. They will start quickly, but once the leaves commence to form the plants must have a position where the syringe cannot reach them, or the leaves will get rusty.

Tydeas.—Cuttings being now plentiful, they may be taken off and inserted in sandy peat, and the old plants thrown away. For large plants, insert the cuttings singly in small pots, and pinch the points from time to time; or place the cuttings thickly together in pans, and when they are growing strongly take off the tops and strike these, and throw the others away. These, if pinched once, make capital plants.

Thysanotus rutilans, as it goes out of flower, may have the tops of the plants taken off and inserted in thumb-pots, placing them under a hand-glass in the propagating-house. The old plants may be cut back for the purpose of affording cuttings.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Figs in Glasshouses.—Fig-trees may be forthwith planted in new borders, and good all-round varieties for forcing are Brown Turkey and White Marseilles, having middling-sized fruits, and Negro Largoas a large one; and of small-fruited varieties, of which there are many, Black Ischia, a good forcer, of a deep purple, and flesh of deep red; Brown Ischia, a free and excellent forcer; Pingo de Mel and Violette Sepor are among some of the best for house culture. Figs mostly grow to a large size, unless the root-runs are greatly circumscribed, and need a good deal trellis—10 feet in width and as much in height, is not too much per plant. In making a hole for the roots of

the plants, the soil should be taken out to a depth of 4 to 6 inches, and sufficiently wide for the roots to extend in all directions at full length. The trees to be planted should have been thoroughly cleaned with insecticide some time before. In planting, turn the roots out of the pots, take away the crocks, and remove by pricking and shaking the whole of the soil from the roots; slightly shorten the strongest of these, then place the plant in its place, lay out the roots straight, and work the soil between the roots, making all quite firm, the uppermost roots being then about 2 inches beneath the surface; afford a moderate amount of water, and fill in. The chief shoots may be temporarily fastened to the trellis in such a manner as to let the tree sink as the soil settles. The earliest fruits are often obtained from potted or tubbed trees; and any of these with ripening fruits will require a moderately dry, well-ventilated house, but in consideration of the second crop of fruits that will be taken from the trees, these points must not be carried to excess. In order to maintain a suitable atmosphere, the floor of the house, and other surfaces must be damped once, twice, or thrice a day, according to the aridity of the air. When all the ripe fruits have been gathered, a thorough syringing of the trees should take place, doing this in the early morning; and air should be afforded at that time by the top ventilators if weather permits. As Fig-trees absorb much moisture from the soil, liberal applications of water are required from time to time, and nothing favours the spread of red-spider so much as dryness at the root. When a second crop is set, afford weak manure occasionally, and alternate this with soot-water. If the bottom-heat materials are sinking, and likely to leave the pots above the surface in some measure, place fresh materials between the pots, not so much to afford heat at this date as to maintain equable conditions in the soil. To have fruits of the best flavour, they should be ripened on the tree; and indications of ripeness are the drooping of the fruit, exudation of honey from the eye, and the cracking of the skin. Gather the fruits when quite dry, and handle them tenderly, pinching the stalk off close to the wood, and at the same time bending the fruit slightly on one side. If to be sent to a distance, pack them like Strawberries.

Trees growing against Trellises, that were started in January, will need the removal of superfluous laterals, and the remaining shoots to be tied to the trellis, the points of these being pinched out in front of the fifth leaf. To bring two crops of Figs to perfection requires a long season of warmth; and the temperatures of the Fig-house from now onwards may range from 60° to 65° at night, 70° by day, with fire heat when it is dull, 85° with sun-heat, and 90° for a short time after closing the house in the afternoon. Afford air in the morning when 70° is reached, increasing the quantity at 75° and 80°, and leave on a little air all night when the weather is mild. Syringe the trees thoroughly once or twice a day. Should scale threaten to become troublesome, use soap-suds with a sponge; if soft-soap is used, it need not be stronger than 4 ozs. to the gallon. If mealy-bug be present, look for them diligently. Maintain the borders in a suitably moist condition.

THE APIARY.

By EXPERT.

Sections and Section-Racks.—These are likely to receive considerable attention this year, seeing that our brethren in America—where all the sections used are made—are just now exercising their judgment, and many of them advocating a new-style section without any "bee-way" cut in the wood, the said bee-way being provided by the divider or separator. One fortunate thing about the discussion is, that the outside measure of the section itself will remain the same. This is a comfort to all those who have a large number of racks made to take the ordinary-sized section. Some in America favour a section showing a larger surface of comb but less in thickness as being more attractive to purchasers. But in any alteration that may be introduced, the number of racks so in use here, made to take what may be called the standard size (4½ inches × 4½ inches) will have considerable weight with all who produce comb-honey in any quantity, before we alter sizes. The proposed new section will, it seems, be 4½ inches × 4½ inches without bee-ways cut in sides of wood. Those who have tried them say that the bee-wayless sections are better filled with honey to the edge of the wood all round. Think of that point, ye ambitious ones in our ranks, when working for the prize-taking sections another year! There is little doubt our pioneers in bee-supplies will have the new sections on hand ready for this season.

Handling Bees.—When the time comes for a thorough examination of hives again, it can be ascertained almost at a glance how matters stand within, and which combs contain brood, as well as making plain the presence of a queen, because the manner and behaviour of the bees are entirely different to those on frames, which are queenless and broodless. In examining frames of brood, be careful to first draw them an inch apart, and then steadily raise them but half out of the hive, just sufficient to ascertain the condition of affairs; this done, replace them at once for fear of chilling the brood. By so doing, the queen-bees will hardly be conscious of any disturbance at all. When combs are treated in this way, it is quite a common thing to see the queen carrying on her important work of egg-laying without any interruption at all during the handling, and she may be watched going from cell to cell depositing an egg in all the empty ones. The queen usually lays four or five eggs in rapid succession, and then rests a minute or two to be fed and stroked over or rubbed down (for this egg-laying business is an arduous task) by the adjacent bees, and the operation again repeated. In early spring, however, eggs are not laid nearly so rapidly as later on; the queen has not yet got into full working order. Be watchful now for old or worn-out queens, such are better destroyed without delay, and the bees united to a stock with a good queen. Then run for all they are worth such, strengthened stocks up to the end of harvest-time, and then divide into two again in the usual manner. On examining a cell just after an egg is laid, a small pearly speck is seen standing on end at the bottom, but slightly on one side of the cell-base. A semi-liquid substance covers the egg and attaches it in position, this is speedily laid down at the bottom of the cell by one of the nurse-bees, and in the course of the next two days is turned over by them so as to respectively assume the angles of 35 and 50 deg. before it hatches, which takes place early on the fourth day after it has been laid. Nearly all eggs laid thus early in the year will produce worker-bees; the time has not yet come for the drone, though towards the end of the month these gentry will be found on the way in all flourishing colonies, especially when the queen is over two years old. Many old-fashioned bee-keepers welcome the early drone, but although often a sign of prosperity, it is occasionally a sign of near exhaustion of the laying powers of the queen. This is a point not to be lost sight of, and to be guarded against, for a queen that is found producing an abnormal quantity of drones at this season is not worth keeping, if any regard is had for the ultimate harvest of honey.

Mead.—For making mead from honey-comb, I send a description of the way we make ours, viz.: Cut the comb up in small pieces about the size of a Walnut. Place in a clean washing-pan, cover with warm-water, no hotter than you can bear your hand in comfortably. Let it soak half-an-hour, add a little warm-water, and then squeeze the comb up with your hand. It will break all to pieces. Next tie a cheese-cloth over another pan, and pour the contents of the first pan on the cloth. When the liquid portion has run through, pour it back again into the empty pan, and add more warm-water, and squeeze the whole again well. Next add as much water as will make up the quantity of mead required. Strain again through the cloth, and when all has drained through the cloth, squeeze the latter to get the whole out, and pour into a clean boiler. It does not matter whether it is a galvanised boiler or not, just for the boiling, but the liquor must not stand in a galvanised-vessel for any length of time. While in the boiler, drop a fresh egg in, and if the egg shows itself nearly half its size above the top of the liquor, you will have some real strong mead by the time it has been kept about twelve months. If the egg goes to the bottom your liquor will be small beer. In the latter case, to make it the desired strength, more honey or sugar must be added till the egg will rise to the proper height. It is, however, no use adding honey or sugar unless you have the liquor warm enough to melt it. When made right let it boil half-an-hour steadily; while boiling put ½ lb. hard ginger tied up in thin rag, also ½ lb. cloves, to each nine gallons. When taken from the fire put it outside to cool, but before quite cold toast a bit of bread, and put a small quantity of yeast on it to start it fermenting. Next day put it in your barrel, but do not cork it up tight for some time, and put the ginger and cloves in the barrel with the mead. This is how we have made our mead for the last forty years, and I do not remember ever having any spoiled. We have made it in iron-boilers and in galvanised ones, but never found any difference; there is no fear if it is done right.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, APRIL 9—Royal Botanic Society, meeting.
TUESDAY, APRIL 12 { Royal Horticultural Society's Com-
mittees.
SATURDAY, APRIL 16 { Ghent Quinquennial Horticultural
Exhibition, open until 24th inst.

SALES.

WEDNESDAY, APRIL 13 { Japanese Lilics, 1600 Roses,
Herbaceous Plants, Gladioli,
&c., at Protheroe & Morris'
Rooms.
THURSDAY, APRIL 14 { Border Plants, Lilliums, Bulbs,
Palms, Roses, &c., at Mr.
Stevens' Rooms.
FRIDAY, APRIL 15 { Stove and Greenhouse Ferns,
Japanese Iris, Begonias, Can-
nas, &c., at Protheroe & Morris'
Rooms.
FRIDAY, APRIL 15 { Imported and Established Or-
chids, at Protheroe & Morris'
Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—47°6°.

ACTUAL TEMPERATURES:—

LONDON.—April 5 (6 P.M.): Max., 51°; Min., 36°.

PROVINCES.—April 5 (6 P.M.): Max., 51°, Valentia Point; Min., 36°, Shetland.
Fair, rainy; frost at night.

Ghent Quinquennial Exhibition. IT is expected that the floral display at this exhibition, and the collections of plants remarkable for their cultivation, will exceed any hitherto seen on these occasions. Cape plants will be largely shown. Probably a collection of plants shown by the late JOHN LINDEN will also be exhibited. The different sections for nurserymen and amateurs will be judged by jurors unconnected with the city of Ghent, hence the position of a member of the jury of the exhibition will in itself be a distinction much appreciated in the horticultural world. The following list, taken from the *Semaine Horticole*, shows how varied are the nationalities of those who have accepted the invitation of the organising committee. So far, the jury is composed of 211 horticulturists of note, including 25 Germans, 30 English, 54 Belgians, 16 Dutchmen, 6 Italians, 4 Russians, 2 Swedes, 4 Swiss, 67 Frenchmen, 3 from Luxemburg, and delegates from Austria, Brazil, Spain, and even from Japan. The exhibition, which will remain open until Sunday, April 24, will be visited by H. M. King LEOPOLD at 8 A.M. on Saturday, April 16, for the purpose of viewing the exhibition, and meeting the members of the jury. His Majesty will also officially pronounce the opening of the exhibition at 10 A.M. on that day. We are also informed that it is probable that His Majesty will on Sunday, April 17, give a garden-party at Lärken, to which the diplomatic body and the members of the jury will be invited. The Veitch medals awarded to M. le Comte de KERCHOVE, the President of the Ghent Society, to M. ED. ANDRÉ, the Editor of the *Revue Horticole*, and to M. LATOUR-MARILLAC, the raiser of the beautiful hybrid *Nymphaeas*, will, it is expected, be presented at the luncheon to the jury on the 15th. On Saturday, the 16th an "International Raout" will be held at 8 P.M., at the Société Union; evening dress. On Sunday, a concert will be held in the Place d'Armes, at noon. The Banquet to the Jury

will be held on the 17th inst., in the Salon of the Great Theatre. It will be attended by some of the Ministers and other notabilities.

Free admission will be accorded to all the horticultural establishments, the Botanic Garden, Hotel de Ville, Belfry, Ruins of St. Bayon, and Museums of the city. Various Clubs, such as the "Union," the "Concorde," the "Société Royale des Mélomanes," will be accessible to the jurors.

Amateur
Gardeners.

THE editor of the new issue of *Who's Who* invited a large number of celebrated people to confide to him details of their favourite recreations. Several thousands of them responded, and the total number of entries thus obtained, counting separately the various recreations given by each, is about 6000. Of these, 219 people professed an interest in their leisure moments in gardening, farming, forestry, and fruit-raising, while 30 more declared themselves to be plant-collectors. An analysis of the ordinary vocations of the men and women who find in the garden the best change of occupation will not be without its interest:—

Littérateurs	42	Civil Servants	7
Professors and school- masters	27	Actors	5
Artists	15	Soldiers	4
Lawyers	14	Landowners	4
Clergy	13	Doctors	3
Titled persons	11	Politicians	3
		Miscellaneous	7

Amongst authors one may particularise Miss Braddon and Mrs. Mona Caird, Mr. Manville Fenn and Mr. Rider Haggard, Mr. W. C. Hazlitt and Mrs. Lynn Linton, Mrs. Macquoid and Miss Helen Mathers, Mr. J. E. Muddock and Mrs. Beedell, Lady Verney and Mrs. Woods, Mrs. Amelia Barr and Mr. Harold Frederic, Mr. George Kennan and Miss Flo. Marryat, Lady Dorothy Nevill and Miss Beatrice Harraiden, Mr. Thomas Hardy and Mr. G. W. Cable.

The professional element is also strong. It includes physiologists like Professor Michael Foster and Dr. Lionel Beale; physicians like Dr. Yeo and Dr. G. V. Poore, Sir William Gowers and Sir W. O. Priestley; librarians like Sir E. Maunde Thompson; botanists like Dr. Marshall Ward, Professor Oliver, and Mr. Pickering; zoologists like Professor Poulton and Miss E. Ormerod; schoolmasters like the Rev. W. G. Rutherford of Westminster and Mr. Bosworth Smith of Harrow; geologists like Professor Boyd Dawkins; chemists like Mr. W. H. Perkin and Dr. Liveing, mathematicians like Professor Allman and Mr. J. J. Walker, Biblical scholars like Dr. C. H. Wright, art critics like Sir John Robinson, educationists like Sir Philip Magnus, and archaeologists like Sir Herbert Maxwell. Amongst the artists are Mr. Francis Bate and Mr. Stanhope Forbes, Mr. G. D. Leslie and Mrs. Ernest Normand, Mr. Alfred Parsons and Mr. Hamo Thornycroft, Mr. Louis Wain and Mr. J. C. Hook, Mr. T. G. Jackson and Mr. Collett; the architects are also in the list.

The lawyers may be represented by names so various as Mr. Justice Wills and Mr. Horace Smith, the Solicitor to the Grenadier Guards, and the Chief Justice of Tasmania, Lord Kiuncairney and Mr. Maclaren, Mr. Alderman Rogers and Mr. Parker Reed, Q.C.

Nor should mention be omitted of the Governor-General of Canada and Lord Battersea, Lord Armstrong and Sir John Edwards-Moss, the Countess of Warwick and Sir Henry Bellingham; while amongst those who take an interest in forest-culture are Lord Bangor, the Earls of Southesk and Courtown, and Lord Charlemont, Lord Middleton, and Sir James Whitehead. It goes without saying that amateur gardeners

are very largely represented amongst the clergy, from Dean Hole to Dr. Jessopp, Canon Isaac Taylor to the Bishop of Worcester, Canon Eytton to the Rev. Thomas Hincks, the Sub-Dean of Manchester and Archdeacon Barber, Canon Bernard and the Prebendary of Wells, the Bishops of Thetford and Southwark, and the Rev. James Rankin. In another calling one should not omit the Secretary of the Education Department, Sir Ernest Satow, Sir Thomas Lister, the late Sir James Stansfeld, and Sir Richard Temple. The actors include Mr. George Giddens and Mr. Edward Terry, Mr. Lionel Brough, Miss Marion Terry, and Mr. Henry Neville; the soldiers, Sir Henry Colville and Lient.-Colonel Ross of Bladensburg, Colonel Waring and Sir Brook Kay; the doctors, Sir George Birdwood, Mrs. Elizabeth Anderson, and Dr. Fleming, until recently the principal veterinary-surgeon to the Army.

Besides all these who find a delight in the practice of horticulture, there are others who seek relaxation in the pursuit of botanical study. These are men of affairs like Lord Battersea and Sir M. Grant-Duff, Sir Herbert Maxwell and the Secretary of the London Institution; scientists, like Prof. E. B. Cowell and P. A. Simpson; authors like Miss d'Esterre Keeling, and Miss Yonge; with Mr. Latimer Clark the engineer, Miss Olga Nethersole the actress, and Sir William Huggins the astronomer.

These examples will suffice to show that the oldest of all human avocations still holds men, however much the division of labour now-a-days may have carried them in their ordinary work away from the tillage of the soil.

LINNEAN SOCIETY.—The next meeting of the society will be held on Thursday, April 7, at 8 P.M. precisely, when the following papers will be read:—Dr. ELLIOTT SMITH, "On the Brain of the Edentata, including *Chlamyphorus*." (Communicated by Prof. HOWES, Sec.L.S.) Mr. H. FARQUHAR, "Preliminary Account of some New Zealand Actinaria." (Communicated by T. W. KIRK, F.L.S.) Exhibitions:—Mr. J. E. HARTING. (1) A specimen of the Asiatic Partridge, *Perdix danrica*, of which a large consignment has been lately received in London *via* St. Petersburg. (2) A skin and skull of the Wild Cat (*Felis catus*), recently obtained in Inverness shire.

ROYAL HORTICULTURAL SOCIETY.—The next Fruit and Floral meeting of the Royal Horticultural Society will be held on Tuesday, April 12, in the Drill Hall, James Street, Westminster, from 1 to 5 P.M. A lecture on "Blight and Blessing," illustrated by lantern slides, will be given by Mr. FRED ENOCK, F.L.S., at 3 o'clock.

CAPE FRUIT.—The *Scot* has arrived with 570 boxes of Grapes and Pears—of the latter, 22 is the number. Of the Grapes it is said "some of them turned out in excellent condition, and realised top prices, while others were very wet, and hardly worth selling. The few boxes of Pears were in first-class condition.

CUCUMBER "EVERYDAY."—We learn that this new Cucumber, raised by Mr. OWEN THOMAS, of the Royal Gardens, Windsor, and exhibited by him at the Royal Horticultural Society's meeting on December 14, February 4 (when it was recommended an Award of Merit), and on March 4, when it was awarded a First-class Certificate, will be distributed next year by Messrs. SUTTON & SONS, of Reading.

TASMANIAN FRUIT.—The P. and O. Steamship Company inform us that the ss. *Ormuz*, with 16,000 boxes, and the ss. *India*, with 18,000 boxes of Apples, are now en route. The *India* is expected about the 7th proximo. No date is given for the probable arrival of the *Ormuz*.

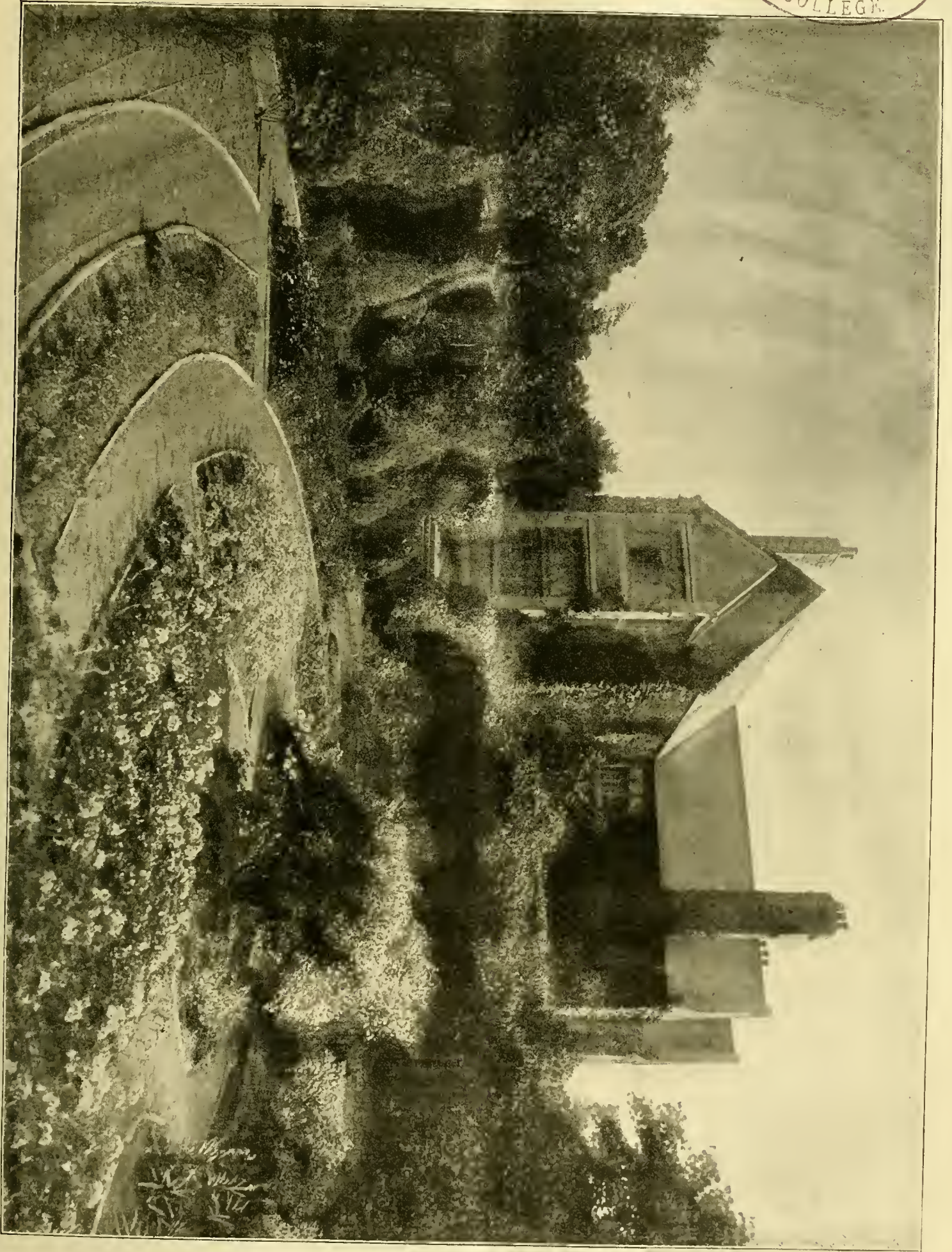
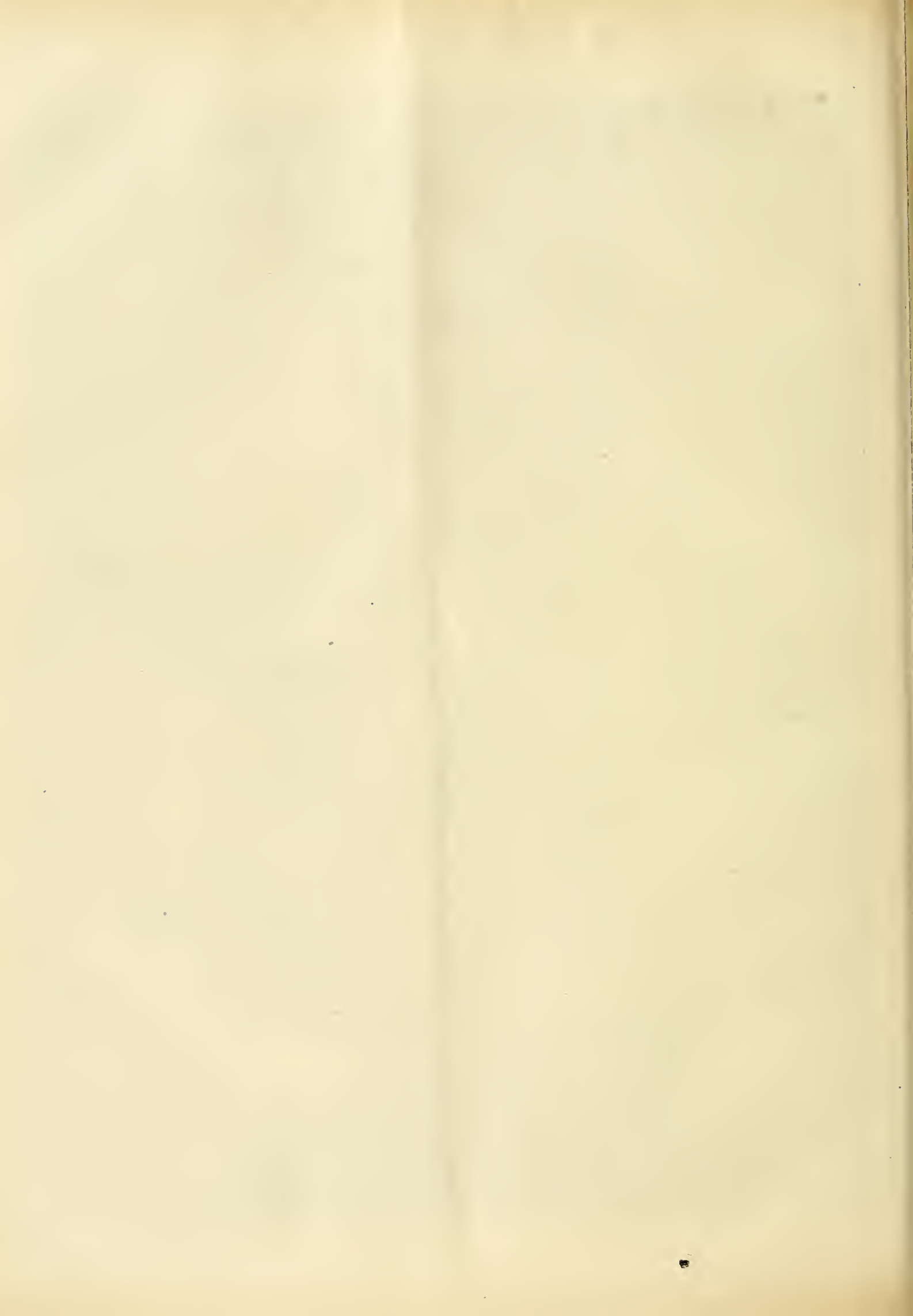


FIG. 81.—THE DOWNES HAYLE, THE RESIDENCE OF THE REV. T. JAMES. (SEE P. 219.)

[Photo by R. H. Preston, Poncaire.



GARDENERS' ROYAL BENEVOLENT INSTITUTION VICTORIAN ERA FUND.—Your readers will doubtless remember that this Fund was established last year to commemorate the completion of the sixtieth year of Her Majesty's beneficent reign. They will also recollect that its object is to temporarily assist unsuccessful candidates whilst awaiting election who have been (or their husbands) subscribers to, or life members of, the Institution. The total amount received for this fund up to Dec. 31 last has been invested, and the committee are glad to be able to announce that the income derivable therefrom this year enables them to distribute the sum of £106 10s., the first half of which was sent on April 1 last to eighteen unsuccessful candidates as follows, and has been divided at the rate of 15s. for each year they (or their husbands) had subscribed:—

	Years self or husband subscribed.	Amount sent April 1, 1898.
Bryan, Andrew ...	13 ...	£4 17 6
Nixon, Francis ...	13 ...	4 17 6
Plevy, James ...	12 ...	4 10 0
Staples, George ...	11 ...	4 2 6
Wood, Caroline ...	11 ...	4 2 6
Gibbons, John ...	10 ...	3 15 0
Watt, James ...	10 ...	3 15 0
Hackwell, Elizabeth ...	9 ...	3 7 6
Wills, George ...	9 ...	3 7 6
Barefield, Alfred ...	8 ...	3 0 0
Hatch, Annie ...	8 ...	2 0 0
Mitchell, Lucy ...	7 ...	2 12 6
Shearn, Joseph ...	7 ...	2 12 6
Lee, Alexander ...	5 ...	1 17 6
Evans, Thomas ...	4 ...	1 10 0
Gould, William ...	2 ...	0 15 0
Thomas, William ...	2 ...	0 15 0
Woodward, Emma ...	1 ...	0 7 6

From the above it will be seen that the aggregate number of years of subscriptions is 142, which at 15s. for each year gives a total of £106 10s., the first instalment of which, as already stated, was sent on April 1 last, and the remainder will be sent on October 1 next. The Committee are very anxious to bring up the total amount of this Fund to £5000, to do which they require a sum of £925, and I should like to draw attention to the generous offer made by N. N. SHERRWOOD, Esq., Trustee, to contribute £50 provided the amount required be raised, in response to which the following gentlemen have each kindly promised a similar sum:—

ARTHUR W. SUTTON, Esq., Reading.

LEONARD SUTTON, Esq., Reading.

HARRY J. VEITCH, Esq., Treasurer.

and several smaller contributions have been already received. The Committee sincerely hope before the close of the year they may be able to announce that the balance to make up this £5000 has been received. They trust, therefore, that every well-wisher of the Institution will note that the "Victorian Era Fund" is still open, and that donations to it will be most gratefully received. The committee also desire again to emphasise the notice which has already appeared in your columns and elsewhere, that the benefits of this particular Fund are intended for those only who have been subscribers to the Institution. GEORGE J. INGRAM, Secretary.

THE NATIONAL CHRYSANTHEMUM SOCIETY.

—The recent smoking concert held in connection with the National Chrysanthemum Society, resulted in a net balance of £8 9s. 5d., which has been contributed to the funds of the Society. The Hon. Stewards Committee, through whose efforts the function was promoted, desire to express their thanks to the many friends who assisted in making the Concert a success.

THE SAN JOSÉ SCALE.

—We learn that Prof. J. RITZEMA Bos, Director of the Phytopathological Laboratory, "Willie Commelin Scholten," at Amsterdam, will shortly be despatched to America by the Dutch Government to study the San José Scale. The Dutch law does not prevent, as Germany has done, the introduction of fresh fruit from America, but it is of great importance to European countries to know if really this scale will thrive here, and we congratulate the Dutch Government on their foresight and enterprise.

INFLUENCE OF THE X-RAYS ON THE VEGETATION OF SEEDS.—MM. MALDINEY and THOUVENIN communicated to a recent issue of the *Comptes Rendus* the result of their experiments with certain seeds grown under the influence of the X-rays. The plants selected for experiment were *Convolvulus arvensis*, *Lepidium sativum*, and *Panicum miliaceum*; three seeds of each were submitted to the action of the rays, and a corresponding number grown under exactly the same conditions, but without being so exposed. In the result the seeds sown under normal conditions were behind the others in germinating. "It may perhaps be objected," says the experimenter, "that the X-rays produce an elevation of temperature in the ground submitted to their action, and that therefore it is quite natural that seeds sown in such soil should germinate before others not so treated. But such is not the case. The experiments were made by the aid of a pair of thermo-electric needles attached to a very sensitive Thomson galvanometer, and no appreciable difference in temperature could be ascertained between ground subjected for two hours to the X-rays and that which was not so exposed. We may therefore conclude that the rays hasten germination, at least of the seeds of *Convolvulus arvensis*, *Lepidium sativum*, and *Panicum miliaceum*. Further, as the young plants, on issuing from the seed, are habitually of a pale yellow colour, we may deduce the fact that the X-rays appear to be without influence to hasten the formation of chlorophyll in germinating plants."

ORCHARDS AND VINEYARDS AT THE CAPE.

For many there is always a charm in figures, especially when they have relation to horticulture. The pictures they often succeed in conjuring up are always beautiful, mentally; and in the matter of fruit-trees with the knowledge of surface necessary for their proper cultivation, the gross acreage of land devoted to fruit is readily set out. In the just-published "Agricultural and Live-Stock Returns for 1896-97, issued in connection with the Statistical Register of the Colony of the Cape of Good Hope," we find quite an army of figures, a few of which are selected for publication in these columns, and these relate to the fruits grown at the Cape, including the Vine to the whole colony, including Pondoland, but excluding Bechuanaland. We have space only for the "grand total" of all the divisions reported upon, and this in most cases by the police of the several districts and other officials. The array selected relates to "fruit trees planted" and "fruit trees standing":—

Name of Fruit.	No. Planted.	No. Standing.
Peach ...	102,308	1,638,560
Aprioot ...	32,344	287,197
Apple ...	43,970	407,674
Pear ...	28,338	310,272
Plum ...	30,766	176,254
Fig ...	45,325	1,012,512
Orange... ..	29,980	215,016
Lemon... ..	2,850	30,510
Naartye ...	3,562	22,876

The figures relating to the Vine industry are few, and are as follows:—Vine stocks planted, 5,967,760; ditto destroyed, 6,817,303; ditto standing, 36,533,019. Certainly the total of the existing vineyards is a great one; the product ought to make a good show. Of raisins the product was 2,019,561 lb.; the wine supplied was 34,435 leaguers. This measure represents 128 gallons, so that the product was exactly 4,407,680 gallons. Brandy was produced to the extent of 1,410,624 gallons. It may be noted that the first horticultural census was made so recently as 1891, the first publication of the figures by the Agricultural Department dating 1893; and these, we trust, justifying the space occupied by them here.

PUBLICATIONS RECEIVED.—The *Agricultural Gazette of New South Wales*, January, 1898, includes papers on Wine-making, Fermentation; *Panicum*

pygmaeum; Stringy Barks of New South Wales; Fruit-tree and Vine Pests; Comboyne Brush; Export of Oranges, &c.—*Tijdschrift over Plantenziekten* (Ghent), 1897.—*English Illustrated Magazine*, April, 1898.

THE DOWNES, HAYLE.

This garden was laid out in 1867 by the late Mr. Rawlings under the direction of John Sedding, the architect. As the ground was practically a *tabula rasa*, everything remained to be done, and every step was taken deliberately, and in furtherance of a preconceived scheme. Money was not spared, and the grounds contain no shoddy work.

The house itself is a beautiful one, semi-Gothic in general character, now well overgrown with evergreen and other creepers. It stands on the summit of a slope, at whose base is the town of Hayle and the sea-level. As an example of architect's gardening, The Downes may be considered a very favourable specimen, though, as the house has been long unoccupied, and the garden consequently neglected, it is a little difficult to discount the toning-down of formality which nature has meanwhile effected. One is spared the more dreadful puerilities of which Mr. Sedding has elsewhere expressed himself as capable: "In the formal part of my garden, my Yews should take the shape of pyramids, or peacocks, or cocked hats, or rampant lions in Lincoln green, or any other conceit I had a mind to."

Still, the architect's influence in the garden, even when the formalising is moderated as at The Downes, is seen to be essentially evil. The compasses and rulers of the office have little function in the garden. Mr. Rawlings took great pride in the considerable collection of choice Hollies he got together at much trouble and cost, but he caused nearly every one to be clipped as one clips a Privet-hedge, so that the leaves alone remain of the beauty and character of the trees. A double avenue of pyramidally-clipped Yews show up the natural beauty of a graceful Cedar hard by, which has escaped the topiarist.

The tiled edging of the beds is all that remains of a geometrical garden, which must in its glory have rivalled a child's sampler in artistic significance. In this department, Mr. Rawlings endeavoured to carry out the ideas and colour schemes formulated in Sir Gardiner Wilkinson's book "On Colour and Taste;" and all the patterns were annually submitted to Mr. Sedding for approval, the colours being actually laid in pigments in the beds before planting. Needless to say, the architect caused the garden, although but slightly inclined, to be laid out in a series of half-a-dozen terraces, each but a few feet below its neighbour.

Still, the formality of the garden is by no means its only feature, and even its formality will appeal to many. Once we get off the line of the formal steps and main walks, we come across beautiful little pieces of garden where herbaceous plants grow in pleasant natural groups, and all is retired and reposeful. A stretch of lawn extends on the western side of the house; and on the second terrace, within a row of clipped Yew, is a piece of grass, formerly a bowling-green. The clipped edges are mostly well-grown and kept, on the north of the upper terrace being a splendid Sweet Bay-hedge many feet in thickness.

On the east of the house, where is the main entrance, is a pleasant court-yard bounded by Ivy-covered walls, which is approached from the road by a short avenue of deciduous trees.

On the whole, then, we may say that, from the point of view of those who hold the opinion that a garden should be obviously a piece of architecture, The Downes is nearly perfect; whilst, even to those who feel that a great part of the art of gardening is the concealment of artifice, the place will appeal as a fine example of formal gardening, which has been pursued without altogether forgetting the beauty of hardy plants naturally grouped, and of unbroken greensward. It is now the residence of the Rev. T. James. The photograph was taken by R. H. Preston, of Penzance. *Harry Roberts.*

HOME CORRESPONDENCE.

CAROLINE TESTOUT, AND OTHER HYBRID TEAS.—I am much obliged to Mr. C. Bennet of Surbiton for his interesting and appreciative observations regarding my recent article in the *Gardeners' Chronicle*. I have often been somewhat sceptical myself regarding the generally-accepted derivation of Caroline Testout, and have frequently drawn the attention of intelligent visitors to my garden to the differences existing between this variety and La France, especially the perfume and the shape of the flowers. Caroline Testout here is of much stronger growth than its pink predecessor, and produces a much larger number of blooms, which, however, have not an equal number of central petals. My friend, Mr. Wilson, Minister of the Trossachs, beside Loch Katrine, who is a highly successful cultivator of Roses, writes me to say that Caroline Testout is the grandest and most reliable Rose in his garden. I can say almost as much regarding its merits, notwithstanding its lack of central compactness, when compared with La France. I have long been of opinion that the fragrance of the two Roses to which I have been referring is by no means the same; and if such is the case, the opinion of Mr. Bennet that Caroline Testout must have had another parent of a somewhat different character, and capable of hip-production, is thereby emphasised. Mrs. W. J. Grant was the result of cross-fertilisation between La France and Lady Mary Fitzwilliam. It is very attractive in bud-form, but not so impressive at any subsequent stage. David R. Williamson.

THEN AND NOW.—The writer of the note under above heading seems to have misunderstood the arrangement of Evelyn's *Kalendarium Hortense*. The two pages devoted to each month are divided into four sections. "To be done in the Parterre, &c.," being the third, and "Flowers in Prime or yet Lasting," the fourth. The two are necessarily quite distinct, the one from the other, the last containing the names of plants, whether trees, shrubs, or hardy or tender flowers in bloom; the other, work necessary to be performed in the garden, &c. The tender plants named Oriental Jacynth (*Hyacinthus*), Levantine Narcissus (*Polyanthus Narcissus*), and Precox, or early Tulips, required to be forwarded by means of a hot-bed, which till some time after 1664 was of a primitive character. It was constructed in the following manner. A spot was chosen, and the ground marked off to the size required. A hole was then dug out to a depth of 4 feet, and this was filled with heating material, about which there was some disagreement as to what was the best for the purpose. The covering was of mats supported on bent sticks, and the introduction of boxes instead of mats was considered a very progressive step. By means of these rude hot-beds, many tender plants were raised from seeds, and, as in the case under notice, plants forced into bloom. These plants, when in flower, appear to have been employed for decorating apartments in the dwelling-house. The greenhouse was merely a place for protecting plants during the winter season. Evelyn's is mentioned as being "a pretty little greenhouse, with an indifferent stock in it," also "his garden, not being walled, has little of the best fruits." Like "Sylva," "P. mona," &c., Evelyn takes credit only for presenting, in a readily accessible form these and this calendar of operations, which he is honest enough to declare was not the unaided labour of his own hands, but the work of the best gardeners he was acquainted with. On account of the pedantic employment of what were then "scientific" names, "Flowers in Prime" provides the most difficult reading that a gardener has to tackle; nor does the writer always employ the same designation as others; Levantine Narcissus, for instance, being commonly called Narcissus of Constantinople. R. P. B.

PINE-APPLE CULTURE.—"An Italian doctor has discovered that there is in the common Pine-apple a substance similar to pepsine, which has the most astonishing qualities. At all events, he declares that the juice of a single Pine-apple will digest 10 lb. of beef! And he has further found that its juice is a very active solvent of the growth or membrane formed in diphtheria. If all this be true, as I hear it is, Pine-apples will be dearer than ever; but we shall not begrudge our guineas for such pleasant remedies for dyspepsia and diphtheria, certainly." When reading the above extract in a recent issue of the *Leeds Mercury Weekly Supplement*, as an old Pine-grower one seemed to see visions of acres of glass being

erected to grow Pine-apples to meet the public demand. Then came the more sober thought, "Oh! it is only a sort of gardening sea-serpent story." No doubt, if what is there mentioned had any foundation in fact, we should have had the subject "chronicled" before this. However, as history is said to repeat itself in certain cycles, perhaps some of your readers may live to see Pine-growing for market again an accomplished fact. Who would have thought it possible, say, twenty years ago, that the huge demand for Grapes and Tomatos would have been what it now is. Of course, I am well aware that Pines are much more expensive to produce than either Tomatos or Grapes. Still, should there grow up a large public demand for English-grown Pines, no doubt it could and would be met at a much less cost than was the case, say, thirty years since. In mentioning the matter, I do not infer it will be so, but thought I would forward you the above clipping. H. J. C. Grimston, Tadcaster.

MAGNOLIA STELLATA.—We find this species of Magnolia to be a useful plant for forcing into flower in the winter, the flowers appearing very freely from the tips of the previous year's growth. One of our plants produced nearly forty of its very characteristic white stellate flowers during the early part of March. This plant is growing in an 8-inch pot in a mixture of equal parts of fibrous loam and peat. The species is quite hardy, but plants that have been forced should not be turned out-of-doors before they have undergone a process of hardening off; the same kind of treatment as that afforded Azalea mollis suits it very well. Seeing that its flowers are produced before the foliage, it is scarcely adapted for the decoration of apartments; but for mixing with other flowers, making up wreaths, or other forms of floral decorations, I find it a very useful flower. I am surprised that the plant has not found favour with enterprising nurserymen, and offered in the autumn along with Lilacs, Azalea mollis, and others used for winter forcing. Perhaps there may be some difficulty in propagating it in quantity? H. J. C.

HIPPEASTRUMS.—It was stated in last week's *Gardeners' Chronicle* that a yellow or white self Amaryllis has still to be looked for. We beg to say that our variety, Aphrodite, has been in commerce for a good many years now, and is pure white in the petal, with no admixture of red in any shade; it is also of good shape. We notice at last two seedlings have flowered as white selfs this year with us, so that this new ground is now apparently broken up. Kelway & Son.

MORE ABOUT WATER-BOUQUETS.—These used to be common at flower-shows, and they were occasionally used for public and private decorations. The fashion, however, did not last very long. It was difficult to fix the bouquet in the right place, to choose material, to place the bell-glass over the bouquet, to fill with water, and to remove the bouquet from the water to the dry stand. Taking the last first, I had a rather serious accident some years since with a huge water-bouquet at a provincial show. This bell-glass was some 2 feet in diameter, and over 2 feet high. Neither a pail nor a tub could be found, nor water sufficiently clear near the show-tent to flood, or rather suspend, the bouquet in water; hence my resort, single-handed, to a lake in the park some distance off. It was difficult to find a solid standing-place. But the water was clear and deep; and after considerable difficulty in floating and submerging the bouquet, which looked lovely in the water, the huge bell-glass or globe was placed over, and every bubble of air drowned out, and a china-plate slipped under it before the crown of the bouquet reached the surface of the water. No sooner, however, did I attempt to lift the complete water-bouquet out of the water than it strove to drag me into the lake, and this weight of the flowers, the water, china-plate, and bell-glass, and the pressure of the atmosphere on the glass-globe were so great that they nearly succeeded. After a sharp short struggle the glass gave way, the plate sank to the bottom of the lake, and the bouquet which had been weighted with lead to preserve its position, gracefully disappeared. It need hardly be added that this was the last of my monster water-bouquets made for exhibitions. Water-bouquets of medium or small size are the most beautiful as a rule. One of the chief points is this filling of the glass quite full of water, another is the choice of globes with a level bottom as well as a base, dish or plate with a smooth or even base. The object of this is to enable the glass and the plate to form an impenetrable barrier between the water and the air. Hence the glass, whether large or small, pressed down by the weight of the air clings to

the base of the water-bouquet as the limpet to the rock, or the sucker of wet leather to the stone. Then no attempt must be made to remove the glass, or repair water-bouquets without first plunging them overhead in a pail or tub of water. As to steadying the bouquet in the water, it is a great mistake to use a lump of clay, as suggested by one of your correspondents, as this would soil the water, and prevent the flowers and leaves from being clearly seen. There is nothing to equal a bullet of lead, worked into the centre of the stem. The whole of the materials of water-bouquets must also be scrupulously clean. The bouquets should likewise be an artistic bunch of Ferns, flower-leaves, grasses, rather than a formal hand-dress or drooping bouquets of the usual forms. This change of front and form in water-bouquets gets rid of most of the difficulties of hiding unsightly stems or stalks. No mistake did more to lower or ruin the popularity of water-bouquets than overcrowding. Not a few seen by the writer conveyed the impression that the chief purpose of their makers was the crowding of as many leaves and flowers into their novel position as could be managed, no matter with what amount of crushing against the glass. Whereas the primary object of every water-bouquet should be to display, in the most artistic manner, every leaf and flower used, and preserve their freshness and beauty as long as possible, and magnify both through their limpid setting. This making and placing of water bouquets needs cultured taste. The setting, like the last touches of the artist on his canvas, not seldom makes or ruins the effect. In both cases, courage, firm handling, and skilful manipulation are needful at the finish. The water bouquet must have its last touches under water, and the artists who fear to take off their coats and tuck up their shirt-sleeves, will seldom succeed perfectly. A few touches of the leaves and flowers before the glass barrier separates us from them makes all the difference, often between the highest art and the common-place. D. T. F.

ALSTROMERIAS.—I have read Mr. Ward's explanation concerning these plants, yet I cannot at all agree with the following piece of advice tendered by him. Mr. Ward says, "Even for early autumn planting, plants established in pots are preferable." It is the exact opposite in my opinion, and there is in truth no more occasion for purchasing such things as Alstromerias in pots from the end of August to the end of January ensuing than there is to purchase Crocuses, Hyacinths, or Tulips in pots for a similar purpose. Mr. Ward does not appear to be aware that dozens of continental bulb-farmers, and also English growers of miscellaneous bulbous and tuberous-rooted plants have special methods in producing the right sort of saleable root, a matter only to be accomplished by, among other things, an annual lifting, a sorting, and a replanting of the group in question. In this way it is made possible for the flower-farmer to obtain from the wholesale bulb dealers 100, or even 200, by parcel-post (all prime flowering roots), for a few pence. Whereas purchasing such things in pots would mean a cost of several shillings incurred in carriage, apart from the cost of packing, &c. Therefore I must challenge Mr. Ward's recommendation from two standpoints, viz., the practical and the economical, the latter invariably a carefully guarded item by the flower-farmer. I note also that Mr. Ward recommends raising stock by means of seeds, which in some respects I agree with; yet, while giving "18 inches" between rows, and "1 foot apart" for the "patches of three or four seeds," which on his own showing require fifteen months to attain to flowering size, the same writer would cramp an already developed plant into a pot. Surely if the seeds of these Alstromerias require so much freedom as 18 inches by 12 inches asunder in the rows, &c., a plant already past the seedling stage cannot be benefited by being confined in the small pots usually adopted by the trade. Nor is this potting usually done or intended for wholesale purchasers of such things, but rather for amateurs and others who purchase these things at varying seasons or at flowering time. The pot system is one of the necessary evils of the trade, as I know full well. Mr. Ward quotes two sources to support certain of his views, yet the very guarded reply attributed to Mr. Ward, viz., that "some are grown in large quantities," does not in the least support Mr. Ward's original statement, wherein all the reputedly hardy kinds were unconditionally recommended for field culture. So far as the hardness of these plants is concerned, my experience coincides with that of Mr. Divers, that at 6 inches deep the majority of the species are safe. At 3 or 4 inches deep I have known many hundreds to be killed outright by

frost. At 6 or 8 inches deep, the latter always preferred by myself in this district, I have grown many thousands of the best known kinds without the loss of any of them. Of this quantity a goodly proportion was reserved for annual lifting to supply customers, and only those directly engaged in the work can form any idea of the superior character of the roots which this system and good tillage furnish. *E. Jenkins, Hampton Hill.*

LONICERA FRAGRANTISSIMA.—On the south side of the house I live in there is a large plant of this winter and early spring flowering Honeysuckle, which for the past four months has not been without flowers. It is a sub-evergreen variety, that is, during mild winters, such as the present one has been (it has been snowing all day here), it does not lose its foliage. In good soils it is a rampant grower, and is especially suitable for mixing with other rapid-growing climbers for covering high walls facing south or west. The warmer the previous summer, and therefore the better ripened the wood, so will be the freedom of its flowering the following winter and spring. As will be known to many, its flowers are not of a showy nature. During the sunny days that always occur more or less each winter, their fragrance can be recognised at some distance away from the plant. It is increased by cuttings inserted in a cold frame in October or November. Small side shoots of the previous year's growth taken off with a heel will root fairly well. Though by no means a showy plant as to its flowers, it well deserves a place in any collection of hardy plants requiring a warm wall for their successful growth. *H. J. C., March 25.*

APPLE NEWTON WONDER.—This variety was raised by Mr. W. Taylor, at King's Newton, and is a cross between Blenheim Orange and Normanton Wonder, and both varieties can easily be traced in it. I have this morning seen the mother-tree, and it certainly is a grand specimen. The trunk is about 30 inches round, and the tree is literally covered with flower-buds. As to its cropping habit, I have seen small trees, about 3 feet high, with as many as thirty-six Apples on, and the fruits will keep till September the following year. The fruit-tree grafted from this mother-tree is now growing at Stanton-by-Bridge, and looks quite as well as its mother. Mr. Taylor has sent grafts to New Zealand, and also to America, where it is likely to be grown very largely, as it is a heavy, solid, and good-keeping variety. I saw Mr. Taylor weigh last week sixteen Apples, and they were 9 lb. good weight. It is a sterling Apple. *Thos. Salisbury, Market Gardener, King's Newton.*

WHAT IS COCOS WEDDELLIANA, HORT.?—Drude, in his monograph of Palms in the *Flora Brasiliensis*, says that this is the same as *Glazioviana Martiana*, Glaziou, of which also *Glazioviana elegantissima*, hort., is a synonym. I must confess that a closer examination of the *Cocos Weddelliana*, hort., shows such great differences from *Glazioviana Martiana*, Glaziou, that it hardly can be united with it. Drude describes *Glazioviana Martiana* as having segments, "e basi paulum reflexa angustissime lineari-lanceolata in apicem integram elongata, in facie inferiore glaucescentia, media 12 cm. longa et 4 mm. lata, ad apicem sensim decrescentia, in plantis late vigentibus autem multo longiora sed semper angusta." The leaf of this plant, of which Drude gives an illustration on tab. 86, shows very little resemblance to the leaves of *Cocos Weddelliana*, hort. The segments are elongate acuminate, very sharply pointed, and the apex is, as the description says, "integer." The *Cocos Weddelliana*, hort., in all those specimens which I have seen, has segments of which one half is half-an-inch and more longer than the other one. Besides this character, the fruits and seeds show differences of some importance, so that, till I have seen flowers of *Cocos Weddelliana*, hort., I must take it for a distinct species. But how to name it? There is already a *Cocos Weddelliana*, Drude (*Hort. Bras.*, p. 411, tab. 90), which is quite another plant. This was published in 1882, whilst *Cocos Weddelliana*, hort., was before mentioned by H. Wendland, without description in Comte Kerchove de Denterghem's *Les Palmiers*. It is true this is a *nomen nudum*, but, notwithstanding, if our plant should prove to be a true *Cocos* I should not hesitate to give it the name *Cocos Weddelliana*, Wendland, which is well known to every one. I think it is nonsense to give to a plant well known to everyone for twenty years or more another name, only because there exists no description, whilst another species, known only to some botanists by dried specimens, was baptised with the same name and equipped with a description. *Dr. Danmer.*

COCOS WEDDELLIANA.—H. Wendl. is not a *nomen nudum*, although no description is given in Kerchove's *Les Palmiers*, published in 1878, because a full diagnosis by Wendland is appended, as a footnote, to an article (with figure) on the species by T. Moore in the *Florist and Pomologist*, 1871, p. 114. In the latest monograph of *Cocos* by Beccari, the species is held to be good (see *Malpighia*, i., 1887, p. 443). Beccari agrees in synonymy with Drude. Van Houtte in *Fl. Serres* [1873], t. 2000, says "Introduite par nous, du Brésil, il y a une quinzaine d'années, elle trouve toujours preneurs et reste comparative rare." The localities given by Beccari are:—Prov. of Rio Janeiro: Serra dos Orgãos, and Serra d'Estrella, alt. 800 mètres. The following is the synonymy given by Beccari:

COCOS WEDDELLIANA, H. Wendl. in *Flor. et Pom.*, 1871, p. 114, with fig.; *Fl. des Serres*, t. 2000; *Kerchove Les Palmiers* [1878], pp. 90, 94, 336, pl. 40; Beccari in *Malpighia*, i. [1887], p. 443.

Glazioviana Martiana, Glaziou ex Drude in *Mart. Fl.*, Bras. III., pars. ii., p. 397, t. 86.

Glazioviana (and *Cocos*) *elegantissima*, Hort.
Leopoldinia pulchra, Seemann, in *Gard. Chron.*, 1870, p. 494 [the earliest figure]. *C. H. Wright.*

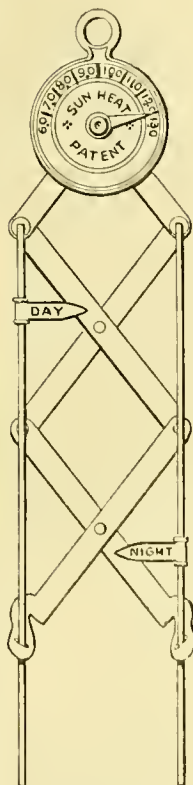


FIG. 82.—TEMPERATURE INDICATOR.

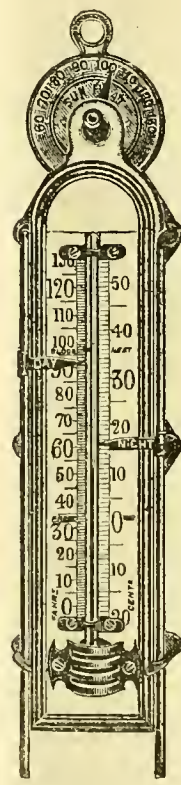


FIG. 83.—TEMPERATURE INDICATOR IN POSITION.

NEW INVENTION.

THE SIMPLICITY HOLDER AND INDICATOR.

THIS is an invention for hanging thermometers so as to indicate the required temperature of glasshouses, living-rooms, &c., where temperature plays an important part. The holders are so constructed that they will receive any sized thermometer. It may be used in the following manner:—Take hold of the ladder and draw it out, turn the pointers back, and hang the thermometer on the projecting knob in the centre of the disc, and press the ladder to until the side-wires are level with the face of the thermometer, and turn the pointers to the face of the glass; they will then not only indicate the required temperature, but will help to keep the glass in position. For instance, in the forcing season, a vinery is started at a day temperature of 50°, and a night temperature of 45°, all one has to do is to

move the pointers on to the figures, so that the man who is in charge of the house or heating apparatus will know what temperature is required, thus doing away with the plan of writing tickets or labels. The disc at the top also has a pointer, which is moved by the projecting knob that the thermometer hangs on. This is to indicate the degree to which the warmth may run up by sun-heat. These holders can be obtained from Mr. A. Outram, 7, Moore Park Road, Fulham, London, S.W.

FRUIT REGISTER.

APPLE GASCOYNE SCARLET.

ALTHOUGH this is a showy fruit, and the tree a good grower, I have never met with one that bore a heavy crop. Grafted on an espalier tree, some branches fruited well in 1897 in the gardens at Northdown House, Margate, and the fruits were of large size and bright colour, keeping sound till the New Year.

LORD SUDELEY.

A half-standard was one of our heaviest cropped trees here last year, and if not so sweet as most dessert varieties, they were showy on the dessert-table, and in season at an early part of the autumn. By going over the trees at intervals of a week, and gathering those that were fit, its season was much prolonged. Another variety which bore well was Cockle Pippin, not A I to look at, but a variety most acceptable when choicer Apples are scarce. *H. Markham, Margate.*

CONTINENTAL NOVELTIES.

NECTARINE FELIX FAURE.

THE well-known raiser of new varieties of *Cannabica*, Crozy of Lyons, has been fortunate in raising a new Nectarine from seed, which, according to the verdict of French pomologists, deserves the widest distribution. The fruit is of a beautiful purplish-violet colour; the pulp very juicy, of a quite peculiar good flavour. It is ripe in the latter half of the month of July. When perfectly ripe, the pulp separates from the stone, but before this period it is more or less of a clingstone.

ARTICHOKE, CONSTANT BEARING OF LOMBARDY.

According to the *L'Horticulture Nouvelle de Lyon*, the firm of Leon Lille, of Lyons, is sending out a variety of Globe Artichoke, that for some years has been grown in the neighbourhood of Milan. This variety differs especially from all other known Artichokes in its comparatively dwarf growth, 2 feet—2½ feet.

The leafage is dark green, the heads long, oval, and quite regular, symmetrical, the bracts destitute of thorns, dark green in colour, excepting at the base, which is violet. It is said to be a great and an early cropper. Seed sown in February and March in heat, soon germinates, and develops under frame culture into robust plants, which transplanted where they are to stand in the month of May, begin to afford heads in August and September.

COLONIAL NOTES.

RUBBER CULTIVATION IN CEYLON.

MR. J. C. WILLIS, the Director of the Royal Botanic Gardens, Ceylon, has issued a circular relating to the cultivation of Rubber-plants, the mode of extracting the juice, and other matters. The chief kinds likely to be useful in cultivation are Ceara Rubber, produced by *Manihot Glazioviana*, Panama Rubber, yielded by *Castilleja elastica*; Para Rubber (*Hevea brasiliensis*), and perhaps African Rubber (*Kickxia africana*). Ceara Rubber grew well in Ceylon, but was found unprofitable. Indeed, the only one that, commercially speaking, can be grown in Ceylon is the Para Rubber (*Hevea brasiliensis*).

Cultural details are given, and the general conclusion arrived at, that after payment of all incidental expenses, there still remains a prospect of a good return on the capital expended.

JAMAICA.

The last issued part of the *Bulletin of the Botanical Department* is taken up with the annual report of the Director on the various gardens under his charge. No fewer than 264,000 plants of various kinds have been this year distributed from the Hope Gardens aloae. Referring to Pine apples, it is found that if in the centre of the leaf of the Green Ripley there is a broad red stripe, the fruit will turn out good; in other cases, the fruit goes into holes at the bottom, and is attacked by ants.

SOLANUM WENDLANDI.

This species is one of the most striking of the collection of climbers cultivated by horticulturists in Cape Colony, and it is a new plant out here. I obtained a small plant from Kew about two years ago, from which a large batch of plants has been raised, cuttings of the plant rooting freely. Three of these young plants were planted against a wire-trellis in the open ground in November 1897, and they are now (February, 1898) about 5 feet high, and in full bloom, with about nine trusses on each, some of the trusses being 14 inches across. The plants on this trellis make a splendid sight. It is, I think, likely to become a market-plant at the Cape, being well adapted to the climate. *C. Howlett, Uitenhage, Cape Colony.*

STRAITS SETTLEMENTS BOTANIC GARDEN.

The Report for 1897 of this garden, by Mr. H. N. Ridley, is now before us. The season seems to have been an average and unremarkable one, save for exceptionally heavy rainfall in certain districts. The Report is, on the whole, satisfactory, various experiments having been made to acclimatise economic and otherwise valuable plants, among them the African Tree-rubber, *Kickxia africana*, which is being carefully tried in the economic garden, Singapore.

AGRICULTURAL REPORTS FROM NEW ZEALAND.

We have received from the New Zealand Department of Agriculture the Reports of the biologist (Mr. T. W. Kirk) for 1893-94, 1894-95, 1895-96, and 1896-97. These four pamphlets have now an additional interest, in that previous to their receipt we had received the news of the death of the author. Mr. Kirk's work is widely known and appreciated, and his place as a biologist will not be easily filled.

MARKET GARDENING.

HARDY PERENNIALS FOR CUTTING.

(Continued from p. 195.)

HELENIUM pumilum is another free-flowering plant, indeed, the most profuse of its race, though *H. autumnale* and *H. nudiflorum* (syn. *grandiflorum striatum*) are good. Among Columbiines none can equal the well-known yellow-flowered *Aquilegia chrysantha*, its best companions being the hybrids of *A. cœrulea* and *A. californica*. These are best raised from seeds, which may be sown in the open, or in prepared soil in beds. If the seeds be sown at once, the seedlings may be planted into permanent positions in the end of August, at which time another sowing may be made to furnish plants to be put out in spring.

A selection of varieties of the "bearded" Irises, *I. germanica*, and allied sections, should be grown, and the following are good kinds: Purple King, early; Princess of Wales, pure white, early; Innocentia, white, later flowering; and flavesceus, yellow; Dr. Bernice, crimson and bronze; Pallida, and Pallida dalmatica, the most exquisite pale mauve colour. Gracchus, crimson and white, very fine; Madame Chereau, white, edges of petals pencilled violet, a beautiful form; and Queen of May, soft pink. These not only afford some variety of colour, but also a prolonged season of flowering. The plants may be divided and planted from now to the

end of May; indeed, after flowering is completed is now regarded the best time of the year to replant the whole group of tall Flag Irises.

Pyrethrums in both single and double kinds are useful to the florist and profitable to the grower. By a little extra trouble these may be flowered in spring and autumn, and, as long-stemmed flowers are so much in demand, this is worth doing.

Pæonies are most desirable, but it is now too late to plant these with any hope of success this year. Other useful plants include *Doronicums*, flowering in March and April, *D. Harpur-Crewe* and *D. austriacum* being the best; such species of *Trollius* as *asiaticus*, *europæus*, *Fortunei* fl.-pl., *napellifolius*, and the newer Orange Globe. These are best suited for a rather moist spot and retentive soil, and should be planted at once, as they flower in May; but the best time to move these plants is after they have flowered. I would not, however, commend the latter season in the case of field culture, as the plants so treated require attention in watering, and early autumn would be best. *Tritoma Uvaria* may be planted on a limited scale. *Rudbeckia Newmani* and *R. purpurea* are both free flowering plants, so also is *Centauria montana rubra*.

Carnations and Pinks need no recommendation from me, but the perennial Sunflowers cannot be thus disposed of, particularly *H. multiflorus* and vars., *H. rigidus*, and *H. M. Mellish*. Michaelmas Daisies form another important group; a few indispensable kinds are *A. amellus* and *A. bessarabicus*, perhaps jointly the best either for beds or for cutting. *A. acris*, producing a wonderful mass of starry flowers, is splendid for house decoration, but does not pack well. Other kinds are *Novæ Angliæ*, *roseus* and *pulchellus*, *Novi Belgii*, *densus*, *cordifolius elegans*, &c. A few specially good Campanulas are *C. persicifolia alba*, also *C. p. corouata alba*, and the large-flowered "grandiflora;" these, with *grandis alba*, are all good, and if planted on rather moist land may be kept vigorous, and probably free of Thrips that in dry seasons infest them. Unless stated to the contrary, the whole of the plants named are well suited to spring planting and field culture—plants, moreover, that quickly establish themselves, and in many instances provide an early return for the outlay. Many good things that take longer to establish, or are not suited to planting at the present time, have for obvious reasons been omitted. *E. Jenkins, Hampton Hill.*

NURSERY NOTES.

B. S. WILLIAMS & SON.

At the Victoria and Paradise Nurseries at Upper Holloway, a few days since, the collections of *Hippeastrums* and *Cliveias* were in full bloom, and in company with other spring-flowering plants, they made a fine display of colour.

In the house of *Hippeastrums* by far the most noteworthy varieties were some recent seedlings, at present unnamed. The greater number of the older varieties are very large flowered, strong-habited, and brightly-coloured, but they lack the variety that is so necessary in a group of such plants. In form and colour of the blooms the seedlings will afford this. Broadly speaking, the blooms are of less depth, the segments broader, therefore more imbricated, and in place of the self-colours, some are prettily striped in varying degree, and upon different coloured grounds. More than this, several of the newer ones, though not "starers," carry their flowers strictly horizontal, and are so much the more effective. One of them had scarlet flowers striped white, the segments being of more than usual substance, and in our opinion this was as desirable a plant as any we noticed. Another was dull crimson, very prettily veined with slightly deeper colour; whilst a third had large cerise-coloured flowers, veined white. The flowers of the last-named were slightly pendent, but the variety in other respects was a commendable one.

In the *Cliveia*-house were some fine large, profusely-flowered specimen-plants, any one of which was suffi-

cient to demonstrate what an effective plant a *Cliveia* is when in flower, providing liberal treatment has been given it. Each year a few additional seedlings flower, and some of them prove to possess points of quality that go to make them desirable in the collection.

Of the seedlings in bloom at the present time the best is undoubtedly one known as *O. Wrigley*. This plant is a fair-sized specimen, and would appear to be several seasons old; it is remarkably free flowered, and its spikes have umbels possessing eighteen or more large sized finely-coloured blooms. A decided advantage that may be claimed for the *Cliveias*, is the fact that though the plants be moved from room to room (with a reasonable amount of carefulness observed), they remain in flower comparatively for a long season.

In other houses, the stove and greenhouse plants, and Orchids the firm has long been noted for, are looking well, in spite of the building of dwelling-houses that has taken place in the district during recent years. It would appear though, that the fact is foreseen, that sooner or later a move must be made towards a purer air. A small part of the nursery has been ceded for building purposes, and concurrently land at North Finchley, something like 4 miles distant from Upper Holloway, has been obtained.

A few flowers only were to be seen in the Orchid-houses, including *Odontoglossum crispum* and other cool species, also the pretty hybrid *Phaius* × *Norman*. Among the *Cypripediums* were some good varieties of *C. Harrisianum superbum* in flower, and a batch of plants of *C. Mastersianum*. This latter species is very free flowering, and if the blooms are small they are equally distinct. The dorsal sepal is green and white, wider and less deep than in most *Cypripediums*; the petals are dull red, marked with dots of chocolate. Large batches of *Aralias* were about ready to lift from the propagating-case, and young *Crotons* were observed in quantity. Among several species of *Asparagus*, *A. retroflexus arboreus* was conspicuous. This *Asparagus* is destined to become a very popular one for various purposes, and is as distinct from the others as it is beautiful in appearance. *A. virgatus*, *A. sarmentosus*, *A. Sprengeri*, and *A. plumosa*, are all good garden plants. A new greenhouse *Rhododendron* is named *Madame Cuvelier*; it has large widely-expanding white flowers in the way of *R. Fosterianum*.

THE BULB GARDEN.

A YELLOW NARCISSUS DUBIUS.

I HAVE in flower, in a cool greenhouse, a yellow form of *Narcissus dubius*. It does not seem to me to differ in any way from the type, other than that the whole flower is of pure yellow colour. My friend Mr. P. Barr, found the plant in April, 1894, growing in loam a little south of Pont du Gard, and sent me in the following summer a bulb which flowered for the first time this year. The occurrence of the yellow form being apparently very rare, Mr. Barr wishes me to make a note of it. *M. Foster, Great Shelford, March 26.*

SCOTLAND.

THE EDINBURGH ROYAL BOTANIC GARDENS.

THE new conservatories which have been erected at the Royal Botanic Gardens, Edinburgh, were opened to the public for the first time recently. They occupy the site of the old greenhouses to the south of the herbarium and museum, and other ground in the vicinity; and into their construction all the latest improvements have been introduced. The range of glass buildings has a frontage of 340 feet, and the main building, which is on the west side, is open from end to end for that length. At right angles to it, on its east face, are four large conservatories, 64 feet in length by 24 feet in breadth; and rising over the central house is a dome with an annexe, around which the other

buildings group themselves in a pleasing manner. The first of these buildings on the south is devoted to the culture and exhibition of stove plants, the second to Orchids, the third to economic plants, and the fourth to succulents and plants from dry regions.

The entrance porch to the central house is devoted to the exposition of insectivorous plants, which have always an attraction for the public. They include the Sarracenias, different kinds of "fly-traps," and representatives of the numerous family of Sundews. Quite a new system has been adopted in the Botanic Garden conservatories for the last year or two, and that is to set the plant or shrub in the earth and not confine its roots within the limits of a pot or tub. The change has been of the most beneficial kind. Under the dome there are set out in this way large specimen Himalayan Rhododendrons, backed by a grove of Camellias and on each side are beds of Myrtles and Acacias; while on tables round the east wall are pots of hard-wooded flowering plants, such as *Ericas*, &c., which make an excellent show.

On the west side wall, and depending from the roof, are creeping and climbing plants, the foliage and flowers of which add greatly to the decorative aspect of the place. In the border along this wall there has been placed a fine collection of *Cliveia*, the dark green foliage and gaudy flowers of which have a striking effect. The collection of Orchids at the Botanic Gardens is of recent origin, and there are to be seen in the two houses at present over 1200 species, and a very beautiful display they make. The stove plants are all planted out, and the effect of this change upon their habit can readily be seen by even the most inexperienced eye. The plants in the economic house include many that are well known in connection with commerce.

One of the most interesting of the greenhouses is that devoted to the culture of plants from arid climes. These include several species of *Aloe* from America, representatives of the *Cactus* and *Euphorbia* genera. There are cool glass chambers provided for the cultivation of filmy Ferns; and on the north end of the range is an old house, which will be reconstructed by-and-by, where is lodged at present the large and fine collection of *Masdevallia* which was presented to the gardens by the Marquis of Lothian.

When the Palm-house was overhauled and reconstructed two years ago, the large specimen Palms and other trees were removed from the old pots in which they had grown for years, and were set in the earth. There has now been time to appreciate this change, which has quite revolutionised the character of the house. Without exception, the trees and shrubs have thriven marvellously, and are growing with something of the robustness and vigour which they display in their native habitats. Prof. Bayley Balfour's scheme for the improvement and popularising of the gardens and arboretum is not yet completed, but it will have to rest a little, as the money voted for this year has, in a way, been appropriated for the work of reconstructing the greenhouses. There will, however, be enough left for him to enter upon a renovation of the back gardens, where, unseen by the public, important cultural work is done, and to finish off in a suitable manner the ground now being levelled and improved to the south of the Palm-house. The cost of the erection of the new greenhouses has been over £2000. *Scotsman*, March 18, 1898.

SOCIETIES.

LINNEAN SOCIETY OF LONDON.

MARCH 17.—Dr. A. GÜNTHER, F.R.S., President, in the Chair.

Mr. J. Harting, F.L.S., exhibited an egg of the Great Auk (*Alca penninis*) which had just been discovered after having been lost sight of for more than twenty-five years. This, the Troughton egg, was reported to have been broken to pieces through the carelessness of a servant, but was merely cracked, and, having been put aside by the widowed Lady Garvagh, was lost sight of until the present week, when, on the death of her daughter, who was her residuary legatee, it became necessary for the executor, Mr. James Powell, to

make an inventory of the personal effects, and the egg exhibited was discovered by Mr. Harting when examining what remained of the collection, long forgotten and stowed away in a dusty attic.

Mr. Edward Bidwell exhibited photographs of the two eggs of the Great Auk acquired from T. H. Potts, and a water-colour sketch of the Troughton egg made in 1861 before it became the property of Lord Garvagh. This sketch placed its identity beyond doubt.

Mr. Howard Saunders, F.L.S., made some remarks on the N.W. limits of the area formerly inhabited by the Great Auk.

Mr. Carruthers, F.R.S., recalled his acquaintance with Dr. John Fleming of Edinburgh, who died in 1857, and who in 1821 was in temporary possession of a living Great Auk. This bird was allowed to swim in the sea with a cord attached to one leg, and owing to this indulgence eventually contrived to escape. Before another twenty-five years elapsed the species had become extinct.

Mr. Clement Reid, F.L.S., read a paper on "Limnæocarpus," a new genus of fossil plants from the tertiary deposits of Hampshire. This new genus occurs in the Oligocene strata of the Isle of Wight and the Hampshire coast. It is closely allied to *Potamogeton* and to *Ruppia*.

Prof. E. B. Poulton, F.R.S., read a paper entitled "Natural Selection as the Cause of Mimetic Resemblance and Common Warning Colours." He remarked that the recent attacks upon the theory of natural selection as the explanation of the above-mentioned phenomena render it necessary to reconsider the whole of the evidence. Alternative hypotheses offered in explanation are—(1) the common result of common forces in a single region; (2) evolution producing the same result independently in different animals; (3) sexual selection. The main general aspects of mimicry, &c., their relation to kindred subjects, the most characteristic features which they present, are therefore to be considered in succession, and the attempt made to ascertain whether they best receive an explanation from natural selection or any one of the alternative suggestions.

The chief heads to be considered are:—(1) The relation of these resemblances to others which occur in Nature. (2) The relation of these resemblances between Classes and Orders to those within the limits of a single Order. (3) Resemblances within the Order entirely independent of Affinity. (4) Resemblances not accompanied by any changes in the direction of another species except such as assist in producing or strengthening a superficial likeness. (5) Essential nature of the resemblance: its analysis into the several kinds of effect produced. (6) The forces which act in any animal depend more upon its life-history than upon its locality. Different animals in the same locality are frequently subject to entirely different forces. (7) Resemblances more characteristic of female than male. (8) The space and time relationships of these resemblances. (9) Resemblances between various Orders, &c., produced in the most diverse ways. (10) Resemblance even within the limits of the Order also produced in the most diverse ways. (11) The unproved, improbable hypothesis of the hereditary transmission of acquired characters demanded by the theory of the direct action of external causes.

The discussion of cases under each of these main heads leads to the conclusion that no help is to be derived from any alternative hypothesis, while natural selection in every case offers an intelligible explanation of the known facts. The conclusion to be drawn is that the recent attacks upon natural selection are not warranted by the facts at present known.

MANCHESTER & NORTH OF ENGLAND ORCHID.

MARCH 24.—At this meeting there were present, Messrs. Thompson (Chairman), Ball (Vice-Chairman), Greenwood, Sidebotham, Leeman, Weathers, Backhouse, Stevens, Gent, and Warburton.

Mr. ED. HOLT, Prestwich (gr., Mr. Murphy), shewed a most interesting plant, viz., *Cymbidium eburneo-Lowianum*, which flowered from an imported batch of *Lowianum*, thus being a natural hybrid. It seemed to have a more floriferous character than the garden hybrids of the same cross which are in cultivation (Award of Merit).

Mr. G. BUCKLEY, Greenfield (gr., Mr. Robinson), exhibited a yellow form of *Cypripedium insignis*, but which was not sufficiently distinct for award.

Mr. J. ROBSON, Altrincham, exhibited several good things, amongst which were a citron-coloured *Dendrobium fimbriatum oculatum* (Award of Merit), *D. nobile Amesiae* (Award of Merit), and *D. nobile nobilissimum* Cliff var., *D. nobile giganteum*, and *D. nobile nobilissimum* Weetman's var.

Mr. J. RICHARDSON, Ilale, Altrincham, sent a splendidly grown plant of *Cattleya citrina*, with a varietal name of *giganteum*, bearing fine, well-developed flowers.

Mr. J. LEMANN, Heaton-Mersey (gr., Mr. Edge), sent a nice collection of plants, including *Dendrobiums*, *Cattleyas*, *Cypripediums*, &c. The Committee awarded a First-class Certificate to *Cypripedium Selligerum majus*, undoubtedly one of the finest forms known; an Award of Merit for a pretty *Odonoglossum Pescatorei*, also an Award of Merit for a splendid plant of *Meconopodium sanguineum* with about thirty fine spikes of flowers.

Mr. G. SHORLAND BALL (gr., Mr. Hay), sent a few very good things. Especially worthy of notice was his plant of *Dendrobium splendidissimum illustre*, which received an unanimously awarded First-class Certificate. Showing the eccentricities of Orchid committees generally, this same

variety only received an award of Merit when previously exhibited; time, no doubt, does heal such little discrepancies. Other plants shown by Mr. BALL were *Dendrobium x Aspasia*, *D. x rubens grandiflora* (Award of Merit), and a *Cypripedium seedling* (*Veitchi x niveum*) (Award of Merit). Mr. E. J. SIDEBOTHAM (gr., Mr. Shine) received an Award of Merit for *Cymbidium Lowianum* var. *viride*.

The next meeting will be held on Thursday, April 14. P. W.

THE NURSERYMEN, MARKET GARDENERS', AND GENERAL HAILSTORM INSURANCE CORPORATION, LIMITED.

MARCH 31.—The third ordinary general meeting of the shareholders of this Corporation was held on the above date at Simpsons', Limited, Strand, London. We give below a few extracts from the Report, which was read by Mr. Veitch. The figures serve to show not only the growth of insurance in this company, but also what a large quantity of glass devoted to horticulture there is now in the country.

"The hailstorms which occurred during the year 1897 will long be remembered for their extreme violence, for the large area over which they fell, and for the devastation and ruin which they wrought, more than eighty nurseries being very seriously damaged.

On April 16, 1897, severe storms caused considerable damage to glass and crops at Luton, Dunstable, and Bedford, as well as in Lincolnshire, Cambridgeshire, and North Herts.

On June 24, 1897, hailstorms of unprecedented violence occurred simultaneously in Essex, Hertfordshire, and Middlesex, the results being most disastrous at Chelmsford, Ingatesone, Ponder's End, Enfield Highway, Waltham Cross, Enfield, New Barnet, Heston, near Hounslow, and Harrow.

The glasshouses at over sixty nurseries were wrecked by these storms, and crops in several localities were completely destroyed.

Many of the nurserymen, market gardeners, and farmers were not insured, their losses amounting to many thousands of pounds. In Essex alone the damage to glass and crops was estimated at over £50,000.

On the other hand, the owners of thirty nurseries whose glasshouses were severely damaged, had insured with this corporation, who immediately surveyed the properties, assessed the damages, and paid the claims within six days of the storms occurring."

Extract from Chairman's Report:—Premium-income amounted in 1895-96, to £681 1s. 9d.; in 1896-97, to £889 11s. 6d.; in 1897-98, to £1360 17s. 0d. The premiums in 1897-98 are therefore 53 per cent. more than in 1896-97, and 100 per cent. more than in 1895-96.

GROWTH OF BUSINESS.

Period.	Policies in Force.	Square feet Insured.	Value.
End of 1895-96 ...	295	10,408,161	£ 132,215 16 0
" 1896-97 ...	316	13,886,095	179,366 11 1
" 1897-98 ...	550	20,098,104	263,590 19 1

CLAIMS PAID SINCE FORMATION.

In 1895-96, two claims, £283 17s. 4d.; in 1896-97, nil; in 1897-98, thirty claims, £1532 17s. 5d. (one claim amounting to £886 1s.). All these claims were settled within six days of the storms occurring.

Of the £399 4s. 4d., formation expenses, £239 4s. 4d. have been written-off, leaving £160 to be written-off in the next two years. The £500 reserve for unexpired portion of premiums is £200 more than the reserve of preceding year, owing to the increase in premium-income. The report was adopted with unanimity. Letters were then read from nurserymen and others, all of which testified to the usefulness of the Corporation, and to the good work already achieved by it.

The retiring directors and auditors were re-elected, and numerous votes of thanks passed, including one to Mr. H. J. Veitch, President of the Board of Directors; and one to Mr. Alex. Jas. Munro, General Manager and Secretary.

THE PEOPLE'S PALACE HORTICULTURAL.

MARCH 31; APRIL 1 and 2.—The usual spring show of this Society took place in the Queen's Hall of the People's Palace on the above date, and proved to be both the largest and best yet held; there being observable a marked advance in the quality of the Hyacinths, Tulips, and Narcissi especially. Everything staged was contributed by the members, for on this occasion there was not a single outside exhibit, and there are yet enough to fill three lengths of tables. It was really and truly an exhibition of East End-grown plants.

Groups of spring-flowering plants arranged on a certain table-space, were very good. Hyacinths, Tulips, Narcissi, Azaleas, and *Dielytras* predominating. Flowering plants in collections comprised *Richardias*, *Azaleas*, *Hoteis*, and *Cytisus*; a collection of three foliage plants grown in windows in the City Road, consisted of a fine piece of *Aracaria excelsa*, about 4 feet in height, broad in proportion, and feathered with branches down to the pots;

a most admirable specimen of *Aspidistra lurida variegata*, and an equally fine example of *Ficus elastica*. *Hoteia japonica* and *Diclytra spectabilis* were good in their several classes, and a very fine *Cyclamen persicum giganteum* was also shown in its class. This had been well cared for in the window of a sitting-room. There were nine entries of six pots of *Hyacinths*, prominent among them King of the Blues, and Grand Maitre, blue; *Alba maxima* and Mont Blanc, white; Cardinal Wiseman, Fabiola, and Norma, red.

In the classes for a plant of several specified colours there were well-developed spikes. The popular East-end *Hyacinth* is undoubtedly King of the Blues. Tulips were also good, and such varieties as Keizer's Kroon, Proserpine, Ophir d'Or, and Golden Prince. White Pottebakker, Vermilion, and Rosa Mundi did the cultivators great credit. Very few double or single *Hyacinths* were staged; the single forms are decidedly the greatest favourites.

With few exceptions, *Crocuses* were past their best, but a few very good pots were staged, and also of *Scilla sibirica*. *Polyanthus Narcissi* were very good, well grown and flowered, and not too much drawn; while *Daffodils*, single and double, were numerous and well bloomed. The Trumpet *Narcissi* comprised some of the best varieties, such as Emperor, Empress, Horsfield, Golden Spur, Barri, &c.

There were a similar set of classes for dwellers in the more crowded districts, and there were thirteen entries of three pots of *Hyacinths*, and fourteen of one pot of any colour. The children are also remembered, there being a series of classes for those who are members of the society. All the competitors must be under fourteen years of age. The society grows in membership, and great interest is shown in the monthly lectures. The next is on the 23rd inst., by Mr. R. Fife, of Orpington, Kent, on "Plant Culture." Once a month there is a social meeting of the members, to which they bring anything of interest relating to the work of the society.

ISLE OF WIGHT.

APRIL 2.—The second annual exhibition of *Daffodils* and spring flowers in connection with the Isle of Wight Horticultural Improvement Association was held at Shanklin.

Mrs. WHITE-POPHAM, who was introduced by the Chairman of the Association, Dr. J. GROVES, opened the exhibition, which was non-competitive, with a few very appropriate remarks. The exhibits were numerous and meritorious.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

APRIL 4.—Mr. W. H. LEES, of The Gardens, Trent Park, New Barnet, read a paper on "Profitable Orchids" before the members of the above Association on Monday evening last, Mr. C. B. Stevens presiding.

An interesting discussion ensued, in which Messrs. Martin, Stanton, Turtin, Woolford, and Bound took part. A fine exhibit of Orchids was made, which helped to illustrate many of the remarks made by the speaker. Those who contributed the plants and cut flowers were Mr. Woolford, gr. to ALFRED PALMER, Esq., East Thorpe (Dendrobiums, Cypripediums, Celogynnes, Odontoglossums, and Oncidiums); Mr. J. Pound, gr. to Dr. MAY, Caversham (Dendrobium *ambriatum oculatum*); Mr. G. A. PARSONS, Oxford Road (Dendrobiums); whilst Mr. STANTON, gr., Park Place, Henley, exhibited some racemes of *Bougainvillea* flowers.

TRADE NOTICES.

Mr. H. DUNKIN, who has been gardener for the past seven years at Warwick Castle, and was appointed lecturer on horticulture by the Warwickshire County Council, has taken a nurseryman and florist's business at West Humberstone, Leicester.

GARDENING APPOINTMENTS.

MR. THOS. KERR, late Gardener at Woodlawn, co. Galway, as Gardener to Miss FOWLER, St. Anne's, Broxbeth Drive, Sefton Park, Liverpool.
MR. A. E. SUTTON, late Gardener to the Earl of CARLISLE, at Naworth Castle, Carlisle, has succeeded Mr. J. Riddell as Gardener to his Lordship at Castle Howard, York.
MR. F. JOHNSON, for the past six years Foreman in the Gardens at Elvetham Park, as Head Gardener to VINCENT STUCKEY, Esq., Hill House, Langport, Somerset.
MR. JAMES WILLIAMS, Head Gardener for the past five years at Brandon Hall, Coventry, as Head Gardener to C. WADE, Esq., Middleton House, Longparish, Hants.
MR. CHAS. DAVENPORT, late of Strawberry Lodge Gardens, Careham, as Gardener to Mrs. MATTHEWS, Marshalls Park, Romford.
MR. WM. MACKENZIE, Foreman at Oxenford Castle, as Head Gardener to Mrs. MACRAE, Kames Castle, Bute.
MR. ALEX. HARDIE, from JAMES DICKSON & SONS' Nursery, Edinburgh, as Head Gardener to G. A. I. ECCLES, Esq., of Darwin, Lancashire.
MR. G. KENT, who had just resigned his position as Head Gardener to Earl of YARBOROUGH, Brockleby Park, Lincolnshire, as Head Gardener to Lord MOUNT-STEPHEN, Brocket Hall, Hatfield, Hertfordshire; and enters upon his duties immediately.
MR. J. KEMP, as Gardener to Colonel TUFNELL-TYRELL, Boreham House, Chelmsford.



[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.	
	Above 42° or below 42° the Mean for the week ending April 2.	ACCUMULATED.				No. of Rainy Days since January 2, 1898.	Total Fall since Jan. 2, 1898.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 2, 1898.
		Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since January 2, 1898.	Below 42°, difference from Mean since January 2, 1898.				
0	1 -	10	31	+ 42	- 166	1 -	77	18.9	37
1	3 -	10	38	+ 55	- 180	1 +	52	4.9	25
2	4 -	8	36	+ 91	- 161	0	aver	44	3.5
3	4 -	15	40	+ 31	- 157	2 -	41	3.5	34
4	4 -	16	38	+ 35	- 172	3 -	39	2.8	23
5	3 -	16	28	+ 52	- 199	4 -	37	3.5	32
6	2 -	13	31	+ 84	- 155	4 -	62	10.3	29
7	4 -	11	27	+ 76	- 186	4 -	50	7.6	25
8	3 -	17	28	+ 65	- 117	3 -	48	6.0	33
9	3 -	15	28	+ 81	- 121	4 -	61	7.7	26
10	4 -	18	30	+ 84	- 95	5 -	44	6.6	31
* 9 -	25	6	+ 110	-	84	5 -	56	4.4	38

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending April 2, is furnished from the Meteorological Office:—

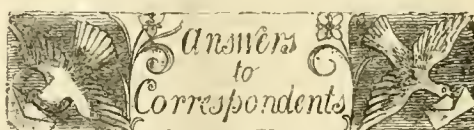
"The weather continued cold and showery over the more eastern and southern districts during the earlier days of the week, but subsequently became fine and somewhat milder. In the north and north-west, however, where at first it was mostly fine and dry, the conditions became unsettled, and rain occurred almost daily until the end of the period.

"The temperature was again below the mean, the deficit ranging from 1° in 'Scotland, N.' to 4° in 'Ireland, S.' and nearly all the English districts. The highest of the maxima were registered, as a rule, on April 1, and ranged from 62° in 'Scotland, E.' and 59° in 'England, S.' to 52° in 'England, N.W.' The lowest of the minima were recorded between March 30 and April 1, they ranged from 23° in 'Scotland, E. and W.' and from 25° in 'England, N.E.' and in several of the western districts to 29° in 'England, N.W.' and to 33° in the 'Channel Islands.'

"The rainfall was slightly more than the mean in 'Scotland, E.' and just equal to it in 'England, N.E.'; but in all other parts of the kingdom it was less than the normal, the fall being especially slight over southern and central England and in the 'Channel Islands.'

"The bright sunshine was deficient in all districts excepting 'Scotland, N.' The percentage of the possible duration ranged from 38 in the 'Channel Islands,' and 37 in 'Scotland, N.' to 26 in 'Ireland, N.,' 25 in 'Scotland, E.' and 'England, N.W.' and to 23 in the 'Midland Counties.'

"Note.—Two distinct shocks of earthquake were felt at Falmouth at 11.50 p.m. on April 1.



BOOKS: Miss F. B. *The Amateur Orchid Cultivator's Guide Book*, 2nd edition. By H. A. Burberry, published by Blake and MacKenzie, Printers, &c., Liverpool. Price 5s.—B. A. *Fertilisers and Feeding Stuffs*, by Bernard Dyer, D.Sc., published by Crosby Lockwood & Son, 7, Stationers' Hall Court, Ludgate Hill, E.C.; *A Treatise on Manures*, by

A. B. Griffiths, F.R.S., &c., published by Whittaker & Co., White Hart Street, Paternoster Square, E.C.

CAMELLIAS AND AZALEA INDICA: B. China is the native country in both cases.

CARNATIONS INJURED: *Smilax*. The grubs (which had become pupæ when received) appear to be those of the Carnation-fly (*Hylemyia*), so often mentioned in these columns. It is quite possible that spraying the plants with paraffin emulsion might deter the female flies from depositing eggs; at any rate, it is worth trying. Keep some of the pupæ (such as those now sent) in a box, and watch carefully for the appearance of the flies therefrom. When they appear will be the time to spray at once. R. McL.

CINERARIAS: W. H. Excessive use of manures, with the resulting loss of roots, and of healthy colour in the foliage.

CUCUMBERS DISFIGURED AND CHECKED IN GROWTH: W. J. S. Similar to the rust in Grapes, produced by cold air impinging on the moist warm berries. It is not a disease.

FERN PRESSING, &c.: L. Earle. You should enquire of Mr. Upcott Gill, Bazaar Office, 170, Strand, London, W.C.

FIGS: J. H. P. It is very common for forced Figs to cast some of their fruits, but by very careful attention to watering, and in the regulation of the temperature and ventilation, it is possible to prevent them doing so.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—J. Fulton. *Tritonia* (*Ixia*) *crocata* variety.—N. M. We cannot undertake to name your florists' varieties of *Azalea indica*. Send them to some large grower of the plants.—B. A., *Ormskirk*. *Panicum maximum*.—H. B. *Anemone blanda*.—D. J., *Argentine*. 1, *Cereus candicans*; 2, *Opuntia payracantha*; 3, *Cereus cœulescens*. The plants have been handed over to the authorities at Kew.—W. J. 1, *Cupressus macrocarpa*; 2, *Cedrus Deodara*; 3, *Cedrus Libani* probably, but without seeing the trees it is impossible to be certain.—G. D. L. 1, next week; 2, *Rhipsalis cassytha*; 3, *Polypodium aureum*.—M. W., *Grimsby*. 1, *Diosma ericoides*; 2, *Hibbertia dentata*; 3, *Odontoglossum luteopurpureum*; 4, *Polygala Dalmatensis*; 5, *Madevalla caudata* (*Shuttleworthii*); 6, *Dendrobium Pierardi*.—R. A., *Cornwall*. 1, *Epidendrum cochleatum*; 2, *Azara microphylla*; 3, *Podocarpus neriifolia*; 4, *Epidendrum radicans*; 5, *Acacia*, seed flowers; 6, *Senecio*, seed flowers; 7, *Eranthemum pulchellum*, probably; 8, *Cestrum* (*Habrothamnus fasciculatus*).

PEAS 18 INCHES HIGH IN MARCH: Banks. Very unusual.

PHALENOPSIS LEAF: H. G. The injury to the leaf seems due to slugs, the epidermis being absent in parts. You should put the plant under close observation for a time.

TOMATOS: W. C. The leaves are attacked by a fungus (*Cladosporium*). If the Bordeaux Mixture has not been effectual, try sulphide of potassium, 1 oz. in 2 gallons of water. Spray the under as well as the upper sides of the leaves. Burn all affected plants at once.

VINES AND CASTOR-OIL: A. H. Dressings of an oily nature are decidedly injurious to plants when applied to parts of the bark that are not of a corky nature. Your Vine-shoots have doubtless been killed by the dressing, which penetrated and choked the pores of the tender rind and wood. Oils, if saponified, have not this effect. You will get a break, probably, from the older wood.

YOUNG GARDENER: J. W. P. You should be able to obtain a new start in a garden with the testimonial you possess, notwithstanding the lapse of a year or two, the occasion for that being easy to explain; only you must be content to commence low down in the scale, and accept rather low wages for a time. Why not advertise in the *Gardeners' Chronicle*?

COMMUNICATIONS RECEIVED.—The Secretary, Chiswick Gardeners' Improvement Association.—F. C. S.—H. H. D'O.—W. R.—J. S., well known.—T. H., La Mortola.—E. C.—F. Sander.—F. Sander & Co. (with thanks).—M. W. G.—Florist.—F. Flack.—J. M. Ockendon.—E. H.—H. Ashwell.—R. D.—J. F. McL.—S. A.—A. C. F.—J. Collinson.—Ramsden & Birch.—H. W. W.—Sutton & Sons.—F. G. B.

(For Markets, see p. xii.)



THE

Gardeners' Chronicle.

SATURDAY, APRIL 16, 1898.

THE FRENCH ASPARAGUS INDUSTRY.

FEW plants have been more perfected by good culture than Asparagus, and of the twenty known species, the most important one is *A. officinalis*. Wild Asparagus is widespread in France, in the sandy meadow-lands, near the Ocean and the Mediterranean-sea. It has been cultivated from time immemorial, because it is one of the most refreshing of vegetables, from its aroma, savouriness, and its digestible qualities. To succeed in its culture demands only care as to soil, manuring, and preservation from insects. There are not many varieties from which to select; two are preferred in France, that of Argenteuil and the Dutch; the former especially from its succulence, abundant production of heads, and appetising qualities; while commercially it is unequalled. Asparagus-beds may be planted with one-year-old roots, with seedlings, or seed may be sown where it is to remain. When raised as a kitchen-garden crop, the land so cropped is called in France an *aspergerie*. In the southern districts, these areas are sometimes cultivated by the plough; but spade-culture is the commoner method. Perpignan and Toulouse send their Asparagus to Paris as early as in the middle of March; followed by that from Chatellerault and Romarantin, and which contribute in all 670 tons annually. The supply from the suburbs of Paris, of which Argenteuil forms the centre, amounts to about 10,000 tons in the season, that is, from the middle of the month of April till the middle of June—when new Peas appear in the market. One authority calculates that the total yearly consumption of Asparagus in Paris, that of those conserved in tins and bottles included, amounts to 13,000 tons, or about 13 lb. per head of the population.

The seed of the Asparagus, when freed from its pulp by washing, is dried for a fortnight on sheets of paper in a shady situation free from humidity. Then it is placed in paper bags, and if carefully stored it will retain its vitality for three years, but the one-year-old seed is more certain of germination. The seed may be sown in sunny nursery plots of sandy or light soil, well tilled, and from which all large stones and rubbish are removed; manure being heavily applied, the plant being a gross feeder. About one cubic yard of horse-dung or sheep's manure, or less of night-soil, may be used on four perches of land. Others employ pigeon's dung, the so-called Peruvian-guano, and wood-ashes, mixed well together, and applied so as to have a layer of fertile soil 6 to 8 inches thick. Sowings are made in the month of April, placing, just as in a field-trench, the

seeds one by one, covering lightly with the earth, and then with straw. In the course of a month the plants will appear as thin green spikes, but they will soon branch out, and in the course of a month it is time to thin them to 4 inches apart, removing those that are sickly or crowding too close. It is well to water the soil before thinning the plants, as so doing facilitates the operation. During the summer weeds must be kept down, and in the autumn when the stems are yellow and 2 feet high, cut these down and remove them. In the winter nothing can be done, and the plant is not injured by frost. To raise Asparagus plants for setting out in beds, is an important industry in itself; and the roots, called *griffes*, are sold at 80 francs per 1000. One of the leading Argenteuil nurserymen has also on hand some 400 varieties of Strawberries, 100 of Figs, and 1000 kinds of Vines; this is merely to give an idea of the trade in these special cultures.

The permanent Asparagus plantation requires a light soil free of stones, and well drained, naturally or artificially. In January, plough down 24 tons of farmyard, or proportionally water-closet manure known as *gudone*, per acre, and apply manure heavily the first six years, and afterwards every alternate year. In March, make a trench, either with spade or plough, 20 inches wide and 6 inches deep; and at a distance of 28 inches from the back of this trench open another, so that the plant-rows will have a total of 48 inches apart. The intervening space will be occupied by the earth from the trench. In the bottom of the trench, upon some night-soil compost, woollen rags, hair, or bits of old leather, place in April the young roots or *griffes* 40 inches apart, and cover with 2 inches of the friable soil or mould, and be careful not to lay the shaggy roots upside down. In due course, plenty of branches will be thrown out, and then keep the plants clear of weeds. In autumn, cut down the yellow stalks, make them into a bonfire in a reserved spot, and cover the plant with farmyard manure, not as protection, but for fertilising purposes. In the next year, hoe down more of the earth between the rows, so as to mound-up the plant. Many growers at this period stake the stems in June, or tie them to a galvanised iron-wire running above the trench. All this is done to prevent the breaking of the stem at the junction with the root. To eradicate the weeds is all that is required till the autumn; then cut down the yellow stems and cover the plant spot with farmyard manure. The Germans employ 140 lb. of common salt per 1000 plants, the moiety in March and October, and by this greater productiveness in the plants, and more delicacy of flavour is imparted to the heads.

It is during the third spring that the first cutting commences. In March, earth-up by plough or hoe to 8 inches, so as to force the stems to become blanched, and arrive just at the surface white and tender. If allowed to come through the earth, the ends will turn green, and be harder, and less delicate. At Argenteuil, the cutting of Asparagus-shoots is far too delicate a matter to entrust to strange hands, so the whole family of the cultivator performs that skilful task. It is now the middle of April, and at four in the morning the gatherers are in the fields. They have a small hand-basket, and a larger one strapped to their back, containing a cavity at the bottom in which their breakfast is stored. Some workers carefully remove with the hand the earth from about the plant, snap off the desired shoot, and replace the soil in position; others have a

special instrument, a large fork, with two prongs at one end to remove the earth, and at the other is a knife with a thin blade to cut off the "*turion*." The small basket when filled is carefully emptied into the larger one; the latter is to carry home the produce. The cutting must be over ere the dew disappears. On arriving at the shed, the work commences of sampling the Asparagus into three categories, which are passed respectively through as many different-sized moulds on a bench; then the bundles are tied with two Osier-twigs, and the root-ends of the stalks made even with a hook-knife. Next, the bundles are placed in a trough to wash off any earth that may remain attached; when taken out, they are allowed two hours to drain and dry. Ultimately, they are brushed. Later, a cart arrives to take the produce to the Halles Centrales, or Central Market of Paris, where it arrives at midnight; the owner has preceded the Asparagus, and selected his few yards of space whereon to sell his produce (between 4 and 7 o'clock), in lots of three bundles at once, but all must be cleared away before 9 o'clock in the morning. The circumference of a bundle of white Asparagus is 20 inches, its weight 6½ lb. The weight of a green-top bundle one half less. Price per bundle 1½ to 7 francs.

To estimate the profit per acre of Asparagus culture, a few accessories must be remembered. The season—two months—extends from the middle of April till the middle of June. The first crop of a new plantation is cut in the third year; only two or three stalks are removed, so as not to weaken the plant.

From the fifth and sixth years, the *aspergerie* will be in full productive power, and can so continue for ten or twelve years. When then broken up, the ground cannot be again occupied with Asparagus till after the lapse of ten years. When in full bearing capacity, one clump of roots yields one bundle of shoots in the two months. The number of plants per acre ranges from 1200 to 4000; the expenses of culture amount to 400 francs, and the sales to 2000 francs. If early Potatoes, Cabbages, Haricots, Gooseberries, &c., be raised in the spaces between the rows of Asparagus, their sale must count. At Argenteuil the Asparagus-rows alternate with Vines, but the latter do not like the union. The wine, a small brand, may realise 400 to 600 francs per acre, and the Asparagus from 800 to 1600 francs, or a combined minimum yield of 1,200 francs to 2200 francs per acre. Within the last half-century, the Asparagus trade of Argenteuil has risen from 30,000 francs to 2,000,000 francs.

Not much attention is given to forcing Asparagus, which was first made known in 1735 by La Quintinye, raising it at Versailles for the Royal table, on hot-beds and under glass. It is very dear—30 francs the bundle—but lacks the aroma and the delicacy of the open-air Asparagus. Its duration, too, is short in the market.

The success of Asparagus-culture at Argenteuil, a city suburb, is attributed by best judges to the manure employed—the *vidange* or night-soil of Paris. Asparagus is eaten in France cold as well as hot: the latter with white sauce; if cold, with oil and vinegar. It is a favourite dish with convalescents, enabling them to pass from a liquid to a more substantial régime. In cardiac affections it is said to act as a sedative, and reduces the heart palpitations, like digitalis, without irritating the stomach. Asparagus is said to be bad for patients recovering from articular rheumatism, as it tends to

bring on a relapse. It is very diuretic. The cause of the foetid odour that *Asparagus* imparts to urine, within less than an hour after eating, and continuing for seven or eight hours, has never been explained by science. A little essence of turpentine poured on the foetid urine produces an odour analogous to that of Violets. The roots of *Asparagus* have always made a popular soothing drink for the sick, while the green tops are utilised to make syrups, and to do duty as green Peas. The immediate principle of the plant, known as "asparagine," is not peculiar to *Asparagus*, as it is to be found also in several other vegetables.

Edward Conner.

ORCHID NOTES AND GLEANINGS.

THE number of *Lindenia* for February and March of this year contains figures and descriptions of the following Orchids:—

CATTLEYA MENDELI, EMPRESS QUEEN.

A very handsome variety, with pale or deep rose-coloured segments, very broad petals; a lip, white at the base, with yellow lines in the throat, and a broad undulate anterior lobe of a rich magenta. Lucien Linden & Co.; t. DC.

VANDA × MISS JOAQUIM.

A hybrid, raised at Singapore by Miss Joaquim. See *Gardeners' Chronicle*, 1893, vol. xiii., p. 740; 1897, vol. xxi., p. 410; t. DCII.

ONCIDIUM BATEMANIANUM.

Sepals and petals shining brown, crest of the yellow lip richly spotted with purple spots; t. DCIII.

ODONTOGLOSSUM THIBAUTIANUM, L. Linden.

A reputed natural hybrid between *O. crispum* and *O. odoratum*; t. DCIV.

SACCOLABIUM GIGANTEUM VAR. PETOTIANA.

A pure white form of this species, remarkable also for the large size of its flowers; t. DCV.

CATTLEYA HARDYANA × VAR. REGINÆ, L. Lind.

Cattleya Hardyana, one of the most brilliant of the genus, is a natural hybrid between *C. aurea* and *C. gigas*. The segments are straw-coloured, the lip reddish-crimson, throat with two yellow blotches. Messrs. L. Linden et Cie.; t. DCVI.

CYMBIDIUM PENDULUM, Swartz.

This is the plant long known in British gardens as *C. aloifolium*; t. DCVII.

LÆLIO-CATTLEYA "PALLAS" VAR. INVERSA.

The original Pallas was the result of a cross between *Lælia crispa* and *Cattleya Dowiana* effected by Messrs. Veitch. The present variety raised by M. Mantin, is stated to be the inverse cross; t. DCVIII.

HYBRID NOMENCLATURE.

A writer in the *Lindenia* protests, and not without reason, at the inconvenience of the present system of naming hybrids. *Cattleya* and *Lælia*, most people think, form one genus, and therefore there is no need for *Lælio-Cattleya*, and no necessity for adding "Brass" to it. It is very difficult to persuade people that it is wisest not to attempt to make the name more than a name. The universal tendency is to make the name descriptive—to make the name play a double part. The result is that one part is generally badly done. Secondary crosses should, in our opinion, always receive vernacular names; and moreover, we think it would be better if primary artificial crosses were similarly named.

"DICTIONNAIRE ICONOGRAPHIQUE DES ORCHIDÉES."

The following species are figured in the January number, which has just reached us:—*Bifrenaria Harrisoniæ*, Rehb. f.; *B. tyrianthia*, Rehb. f.; *Cattleya Patrocini*, St. Léger; *C. Mantini*, G. Mantia; *Cymbidium Tracyanum*, Hort.; *Cypripedium Arthur-*

iannum, Rehb. f.; *Dendrobium fimbriatum*, Hook.; *Lælia purpurata aurea*, Rehb. f.; *L. anceps Schroderiana*, Rehb. f.; *Mitonia Peetersiana*, Rehb. f.; *Odontoglossum Rossi* albens, H. Will.; *O. nevadense*, Rehb. f.; *Warscewiczella cochlearis marginata*, Cogn.; *W. c. Peetersii*, Cogn.

LÆLIO-CATTLEYA × SIR WILLIAM INGRAM.

This hybrid form appears to be one of the handsomest of spring-flowering Orchids. It flowered for the first time in the month of April, 1896, and it is again in flower in the garden of the raiser, C. L. N. Ingram, Esq., Elstead House, Godalming. It is the result of a cross of a fine form of *Lælia purpurata* with *Cattleya Dowiana aurea*, and the bloom is very charming and brightly coloured, showing distinct traces of *C. D. aurea* in the lip, but scarcely any in the sepals and petals, which are of a clear rosy-lilac hue. The lip is orange-coloured at the base, and heavily marked with reddish-purple bands. The front lobe is of a bright purple colour, that merges into claret colour in the centre, the whole having a lavender coloured margin.

CATTLEYA × CECILIA.

This pretty hybrid between *Cattleya Lawrenceana* ♀ and *C. Trianaei*, raised by Mr. T. W. Bond, gr. to C. L. N. Ingram, Esq., Elstead House, Godalming, was first shown at the meeting of the Royal Horticultural Society on November 12, 1895, and another variety of it named "elata," was shown on March 9, 1897, the latter being much better in form than the one previously shown. A grand flower of it has been received from Mr. Bond that serves to show the amount of progress that is due to cultivation. The sepals and petals are of a bright rosy lilac; the lip, which partakes in form of that of *C. Lawrenceana*, is of a light rosy-tint at the base on the exterior, and cream-white in the interior. From the base some dark red lines radiate, which in the middle area change to yellow and again to white as the front is approached. The front lobe, and edges of the side lobes, have a rich amethyst-purple tint, and the spaces between the veining are lighter in colour. As in the varieties formerly shown, there is a distinct resemblance to *Cattleya labiata* Luddmanniana, or speciosissima as it is often called.

WOOD-ASHES.

WE learn from a report by R. Harcourt, B.S.A., Assistant Chemist, O.A.C. Guelph, that there is a growing interest in the subject of wood-ashes, and their use as a fertiliser. This is largely owing to the fact that long cultivated lands are beginning to show a lack of fertilising constituents that are supplied by ashes, and to a desire on the part of the cultivator of the soil to increase and improve his crops.

The growing plant gathers all its mineral constituents from the soil in which it lives, and these, not being combustible, are left as ash when the plant is burned; consequently, the ash must contain all the mineral constituents that are essential to growth. These are potash, phosphoric acid, lime, magnesia, iron, and sulphur. These substances form a very small part of a plant, yet without them no plant could grow and produce seed; in fact, they are indispensable to life. Of the six essential plant-food substances named, potash and phosphoric acid are the most important, not only because they are taken up by the plant in large quantities, but also from the fact that our average soils do not contain them any too abundantly. Wood ashes, therefore, are usually valued according to the amount of those two constituents which they contain. Although potash and phosphoric acid are the most valuable plant-food substances in ashes, yet ashes also contain large quantities of lime, which is of considerable value to the growing plant. Lime is usually present in most garden soils in sufficient quantities to supply the wants of plant-growth, yet its application may produce marked effects. By acting chemically on certain constituents in the soil, plant-food, especially potash, is brought into an available form. It neutralises the free acid of the soil, and thus helps along the process by which vegetable matter is changed

into a form in which the plant may make use of its nitrogen. It also tends to improve the mechanical condition of both clayey and sandy soils.

The amount of these fertilising constituents contained in an ash will vary according to the source from which it is derived. The ash from young branches will be richer in potash than that from the older parts of the tree. Different soils will supply varying quantities of potash, phosphoric acid, and lime. The following table gives the composition of a few of the more common ashes analysed by Mr. Harcourt. The figures given express the percentages of the various constituents in the dry ash:—

Constituents in Wood-ashes per Cent.

Ashes from—	Potash.	Phosphoric Acid.	Lime.	Magnesia.	Iron.	Sulphuric Acid.
Maple	9.31	2.03	45.24	..	...	1.14
Beech	7.58	1.39	41.21	6.16	0.30	traces
Cedar	3.30	0.93	49.01	2.49	0.70	0.77
Swamp Elm ...	35.37	0.45	23.61	6.48	0.19	traces
Black ash ...	25.30	1.20	49.04	7.42	0.22	0.71
Hard coal ...	traces	0.16	traces	...	5.32	0.41

The figures show clearly why ash buyers are so anxious to get black ash or swamp Elm ashes, but at the same time, it must not be forgotten that these ashes are very light and bulky; consequently, there may be more potash in one measured bushel of hard Maple ash than in the same bulk of swamp Elm-ash. The hard woods contain a larger quantity of phosphoric acid than the soft woods. Cedar, as would be expected, is poor in both potash and phosphoric acid. The best way to ascertain the true value of ashes is to note the increased yield when they are applied to crops requiring potash, such as Potatoes, Carrots, Grape-Vines, and fruit-trees generally.

The caring for and application of ashes must receive special attention. If not properly stored while accumulating, much of the soluble plant-food will be lost by leaching. If not applied to those plants which are in special need of potash, no noticeable results may be obtained. Further, if mixed with farmyard or stable-manure they may do more harm than good, because they tend to liberate, as ammonia, the nitrogen of the manure. If we may judge by the amount used by fruit-growers in the best fruit districts of the United States and Canada, they are fully aware of the value of wood-ashes in the orchard. J. J. Willis, Harpenden.

KEW NOTES.

CYTOSPERMA AFZELII.—This is a new Aroid from Old Calabar, which is now flowering for the first time in a stove at Kew. It has a fleshy rootstock, and numerous dark green glossy leaves from 2 to 3 feet high, the petiole angular, and clothed with short spines; the blade sagittate, 1 foot long and 6 inches wide, the basal lobes 6 inches long; scape erect, 3 feet high, spiny, like the leaf-stalks; spathe erect, ovate lanceolate, half folded at the base, 8 inches long, 3 inches wide, coloured greenish-yellow with broad irregular streaks of purple; spadix, thick, 2 inches long, erect, black-purple, bearing male and female flowers mixed as in *Anthurium*. Kew is indebted for plants of it to Mr. Holland, Curator of the Botanical Station at Old Calabar, who wrote that it grows abundantly in swamps there. He also sent a photograph which shows the leaves and scapes about 7 feet high, and the spathe correspondingly large. For tropical aquaria this ought to prove a striking plant. A figure of it has been prepared for the *Botanical Magazine*. The genus is composed of about ten species, distributed over the tropics of Asia, Africa, and America. *C. lasioides* is an old inmate of the Aroid-house at Kew.

ALOE CONCINNA.

Several plants of this prettily variegated little Aloe are now flowering in the Kew collection. It was

named and described by Mr. Baker in the *Kew Bulletin* in 1895, from a plant received in 1884 from Sir John Kirk, when at Zanzibar. The stem is a quarter of an inch in diameter, about 1 foot high, clothed nearly to the base with leaves which are 5 inches long, 1 inch wide, and one-third inch thick, recurved at the apex, the margins armed with white deltoid teeth, the whole surface glaucous green, copiously

It has tall, leafless, flattened pseudo-bulbs, 3 to 4 feet long, $\frac{3}{4}$ -inch wide at the top. The young stems bear dark crimson leaves, which change to green with age, when they measure 6 inches in length by $2\frac{1}{2}$ in width. The flowers are on slender pedicels 4 inches long; sepals and petals linear, spreading, $2\frac{1}{2}$ inches long, coloured greenish-white; lip white, three-lobed, the central lobe narrow and horn-like, the laterals ovate.

Oregon, where this plant is common in Pine-swamps; they were planted in pans of leaf-mould and sphagnum, placed in a greenhouse, and watered often. Each tuber produces a single leaf, which has a stalk an inch long, an ovate-cordate, ribbed, dark green blade 2 inches long, and an erect scape 3 inches long bearing the daintiest of rose-pink flowers with the pose of a *Cypripedium*, the lip being curiously pouched, with an apron-like front-lobe spread over a pair of projecting horn-like spurs. A pan of about a dozen plants in flower is charming. It is not easily kept from year to year under cultivation, but it appears to be abundant in the United States, and is offered cheap by some of the nurserymen there.

SOLANUM WENDLANDI.

The value of this as a decorative climbing stove-plant is being gradually recognised. It is quite at home on the roof of the Water-Lily house at Kew, where its merits were first revealed, and where it flowers freely during the summer. The following note from Mr. C. Howlett, Uitenhage, S. Africa, shows its behaviour there:—"Two years ago you sent me a small plant of this, from which I have propagated a large batch, as it roots very freely here from cuttings of the green wood. Of these young plants I planted three in the open ground against a wire trellis last November, and in three months they have covered the trellis 5 feet high, and are in full bloom, averaging ten trusses to a plant. Some of the trusses measure 14 inches across. It is a splendid sight, and is admired by all who see it. I think this plant is likely to become a great favourite out here, especially as it proves to be so well adapted to the climate. Everybody wants to know where I got it, and of course I tell them the Royal Gardens, Kew, where all the good things come from."

THE MELON-PEAR.

Fruits of this are now being sent to the English markets from the Canary Islands, where it appears to grow and fruit freely, the fruits being as large as turkey's eggs, very fleshy and juicy, seedless, sweet, and palatable, having the flavour of a Melon with a slight acidity. They are smooth, amber-yellow, with irregular purple streaks about the base. Attention was called to this plant in the *Gardeners' Chronicle* for March 10, 1888, where it is figured under the name of *Solanum guatemalense*. Plants were obtained and grown at Kew, where it proved to be the *S. muricatum* of Aiton, a Peruvian species. At Kew it did not grow well either against a wall, in the open, or under glass, nor have I heard of its proving a success anywhere in England. It is said to be cultivated extensively in the highlands of Guatemala and in California, plants 4 feet in diameter producing 100 to 150 fruits. It has been described as one of the best of fruits when properly grown. Directions for its cultivation were given in the *Gardeners' Chronicle*, April 21, 1888. I lately received a fine fruit from a correspondent in Liverpool, where it was offered for sale in the market. W. W.

FURCRAEA GIGANTEA VAR.

I SEND by same post photographs of two plants growing in the Natal Botanic Gardens, which were received here in 1882 from Mr. Louis de Smet, and were planted out-of-doors early in 1884. They were received under the name *F. Lindeni*, and on referring to Mr. Baker's monograph of *Amaryllidaceae*, I find that this plant is said to be a variety of *F. cubensis* with variegated leaves, but a comparison of the measurements of *F. cubensis* given in that work, with those taken by myself of our plants, will show that our plants are certainly not *F. cubensis*; the measurements are as follows:—

<i>F. cubensis</i> .	Our plants.
Trunk, 2 to 4 inches thick.	2 feet 5 inches,
Leaves about 30 in rosette.	140 to 150
" 2 to 24 feet long.	8 feet 6 inches.
" 3 to 4 inches wide in middle.	6 to 7½ inches.
" 1½ inches wide above base.	3 to 4½ inches.

I have therefore come to the conclusion that our plants are not *F. Lindeni*, but a variegated form of *F. gigantea*, with the description of which plant they



FIG. 84.—FURCRAEA GIGANTEA: VARIEGATED FORM.

spotted with milk-white spots. Scape slender, erect, 6 inches long, bearing a dozen or so flowers on short pedicels, the tube nearly 1 inch long, and coloured red, white, and green. The plant is decidedly ornamental, and it differs from all other variegated *Aloes* in the loose arrangement of its leaves, their form, and the distinctness of the spots.

EPIDENDRUM NOCTURNUM.

A plant of this, received last year from Demerara, is now in flower in the tropical Orchid-house at Kew,

The flowers are fragrant, especially at night, hence the name. This species is said to have been one of the first Orchids introduced into European gardens. It is widely distributed in central and South America and the West Indies. A small form of it is represented in the *Botanical Magazine*, t. 3298.

CALYPSO BOREALIS.

Several panfuls of this pretty little terrestrial Orchid are now in flower in a cool-house at Kew. The tubers were imported a few weeks ago from

more nearly agree. The reason, however, for my having the photographs taken is the peculiar way in which both these plants have produced their flowers and seeds. Instead of "poling," as it is called by the growers of the plant for its fibre, i.e. throwing up a peduncle of 20 to 40 feet in length from the centre of the rosette of leaves, and thus preventing their further production, our plants about two years ago commenced to throw off from the axils of the lower leaves a number of slender peduncles, which reach from 4 to 7 feet in length, and bear numerous flowers and seeds; and in addition to this, a few suckers are produced on the bare stem of the plants. I do not know whether this mode of inflorescence is common in the genus or not, but should be pleased if this short notice may be the means of eliciting information on the subject. As will be seen by fig. 84, the plant is a striking object, and the variegation of the leaves is very conspicuous; but it is somewhat unfortunate that both plants will most likely have to be removed to make room for our new Jubilee Conservatory. I shall, however, if at all possible, have one at least of them left, as it will be interesting to myself, and doubtless to others also, to know how long they will continue to grow without throwing out the central peduncle, which would notify their approaching end. *J. Medley Wood, Natal Botanic Garden.*

THE HORSE-CHESTNUT.

M. E. ROZE recently contributed to the Société Nationale d'Horticulture de France a paper on the Horse-Chestnut and its second flowering, the substance of which is here reproduced. M. Roze remarks that:—"This ornamental tree does not appear to have been known to the ancient Greek and Latin authors; it is mentioned for the first time in the Commentaries of Matthioli, who received from Constantinople, about 1550, a branch bearing fruit.

Matthioli gives a description and illustration showing fanciful flowers, and this design was reproduced by other botanists for more than a century. The flower, in fact, was not really known until much later. Charles de l'Escluse, who gives interesting facts about the Chestnut (*Rariorum Plantarum Historia*, 1601), and who had planted one in Vienna, Austria, the development of which he watched, expresses his regrets at having been obliged to quit this capital in 1588, when his tree, then twelve years old, had not yet bloomed. He said that he had vainly besought his friends, who accompanied the ambassadors of the Emperor of Austria to Constantinople, to send him some flowers; he had only received one Chestnut without its spiny husk, and it was only in 1587 that the learned Wexius brought him a perfect fruit from Byzantium.

De l'Escluse, in his description of the Chestnut, does not then speak of the flowers; but he presumes that it must be a very large tree, and remarks that it bears frost very well, and bears shade and damp as does the Plane. "In autumn," says he, "when the tree has lost its leaves, all the branches are seen to terminate in turgid buds, ready to open, covered with gum, to which gnats and other insects become attached, these buds open at the beginning of spring, so that the leaves appear early." Thus the Chestnut was cultivated first in Italy, where Matthioli resided, and was certainly found also in Austria, later on, by De l'Escluse.

In 1650, Jean Bauhin (*Historia Plantarum Universalis*, Yverdon, 1650) also laments his ignorance of the flower of the Chestnut. But he mentions having seen in the Grand Ducal Garden, Florence, a Chestnut from which he gathered a fruit with its prickles. He adds, that it was a rather large tree, very bushy, and that Zwinger had observed it between Padua and Verona. This clearly proves that the Chestnut was grown in Italy as early as the middle of the seventeenth century.

In France it was already known. Duhamel du Monceau (*Traité des Arbres et Arbustes*, 1755) says:—"It is considered certain that this tree was brought from the East in 1615 by a Parisian collector named Bachelier. What is yet more certain is, that the Chestnut, under its first name of Castanea

equina (Horse-Chestnut) figures in 1636 among the plants cultivated in the Jardin Royal des Plantes Médicinales (now the Natural History Museum), according to the Catalogue published at that date by Guy de la Brosse. It is to be believed that the fruits of this Chestnut-tree served, consequently, for its multiplication in France.

As to the first name of Horse Chestnut (*Châtaigne de Cheval*), given to the fruit, Charles de l'Escluse tells us that it originated with the Turks, who find it of use for broken-winded horses or those with a cough. Tournesfort gives a good figure of the flower of this tree (*Institutiones Rei Herbariæ*, 1719), which he names *Hippocastanum vulgare*; he calls it in French *Marronnier d'Inde*. Linnæus, later, gave it in his turn the name of *Æsculus Hippocastanum*, the scientific name actually in use.

THE SECOND FLOWERING OF THE HORSE-CHESTNUT.

So far, there has been no mention of the second flowering of the Chestnut. Duhamel du Monceau, in his above-mentioned *Traité* (1755), speaks thus of it—"The *Marronnier d'Inde* has much increased in the parks, but is not found in the forests; we have planted it in clumps in the woods, where it perished. Nevertheless, it succeeds quite well planted in quincunx in fresh earth, and without being cultivated. It is a very large tree, which is very acceptable in gardens during the month of May. . . . It is lopped and cut with the pruning-hook. Thus are found those beautiful walks which we can but admire in the gardens of the Château des Thuilleries et du Palais-Royal." This author continues: "this tree is only pleasing in spring; the heat of the month of June causes the leaves to turn yellow, some of which fall with the fruit after the month of July."

Now one botanist, Fabregeon, had fifteen years earlier already said: "The *Marronnier des Indes* flowers and fruits in April and May, and sometimes in September and October; these fruits are only ripe in autumn—fruits forming in autumn are always abortive. Nothing is more common in all the environs of Paris, it multiplies from seed and grows without cultivation" (*Description des plantes qui naissent ou se renouvellent aux environs de Paris*, 1740).

It is evident from these two extracts how widely spread the planting of the Chestnut had become in Paris and the environs in the first half of the 18th century. But Fabregeon tells us that this second flowering had already been noticed, although it seems not to have yet attracted the attention of the Parisian florists.

The predominant idea respecting the premature fall of the Chestnut leaves seems to be the result of the allegations of Duhamel du Monceau—that it is the heats of June which are the cause. There would thus be a sort of burning-off of the foliage. But why should the Chestnuts of the boulevards and squares of Paris be more subject to this than those in the country, the leaves of which are hardly browned at the edge when those in Paris are already fallen?

It must be remembered that the Parisian Chestnuts are usually earlier than those outside the city. It must always be considered, too, that Chestnut leaves, as I am assured, are very liable to the disease of browning. The slime fungus, which is the exciting cause, is increased by the plasmods or microscopic cysts which the wind carries among the trees with the dust of the soil, and which penetrate little by little into the leaflets on which it produces brown spots, ultimately affecting all the blade as well as the veins; it even attacks the petiole, on which it forms brownish marks. The affected petioles wither in turn, and owing to the mortification of the tissues at their point of insertion, fall one after another; soon followed by the petiole, which is detached from the tree by the same cause. The Chestnut is thus stripped after July or August, being yet full of elaborated sap for which there is no use. It is then that the buds are stimulated to premature energy, they open and put forth young leaf-shoots, terminated by racemes of flowers, which surprise us by opening at a season other than that of spring.

This phenomenon of the second flowering is not rare in Paris, as many Chestnuts re-bloom in

September on the boulevards. It is credible that the leaves of these Parisian trees are more easily and sooner affected than those of suburban Chestnuts. This may be partly due also to the precocity of the first foliation, and then to the fact that currents of air are more frequent in the streets of the capital than in the open country. In any case this leaf-destruction is not the result of sun-burn in June, as Duhamel du Monceau believed; but must be attributed to the vigour of the browning disease, which, under certain circumstances favourable to it, is sometimes capable of wide extension.

FLOWERING PLANTS FOR EASTER DECORATION.

EASTER is a season in which there is much demand upon private gardening establishments, by reason of the extra furnishing of mansions generally practised, and the decoration of churches. Easter has now passed, and my object in writing is to mention briefly a few of the many plants which, if forced mildly, are useful at this period, and which I may say were in flower in these gardens on Easter Day. Our well-known friend, the white Arum, must be mentioned, although it is so well known, and is popular everywhere. We do not plant out our stock, as is so frequently done where large quantities are grown, but at the end of August or early in September we pot up the strongest crowns into 7, 8, and 9-inch pots.

I should be lacking in discrimination if I omitted to mention next the *Azalea indica* Deutsche Perle, which, introduced some years since, has established a reputation for itself which is seldom accorded a plant so unanimously. In regard to this plant, the difficulty is, not how to get it into flower, but how to prevent it flowering. We have quite a number of plants of this choice variety, and have been cutting flowers from them since the end of October last. This *Azalea*, like all others, is seen at its best when associated with Palms, Bamboos, or other graceful plants.

Viburnum Opulus (Guelders Rose), and the more compact-growing species, *V. plicatum*, are two subjects of shrubby character, that are eminently adapted for church decoration. The plants are easily forced, and the flowers last a long time in a good state if kept in a cool, well ventilated structure.

Another flowering shrub which is invaluable, and at present is in full beauty, is *Spiræa confusa*. This is wonderfully free flowering, and though it does not last so long in a useful state as the former, it possesses a charm which is unsurpassed.

Writing of this genus, I must not overlook other well-known species, and I have no hesitation in placing the older form at the top of the list, viz., *Spiræa japonica*, as this for general purposes is all that is required. When well-grown, every plant forms a picture, which requires no bolstering up to make it perfect. *S. astilboidea* is a strong-growing variety, and certainly useful; as also is *S. multiflora compacta*; and the latter, especially in a cut state, is very pretty, but as yet they have not displaced the old *Hoteia*, or *Astilbe japonica*. *Staphylea colchica*, though somewhat less known, should be included in every collection of spring-flowering shrubs. The individual flowers closely resemble those of the Mock Orange (*Philadelphus coronarius*), and the plant has to be recommended more as a means of supplying flowers for cutting than as a decorative-plant; for, unless in exceptional instances, the general appearance is stiff. Lilac Charles X., and *L. virginalis*, preferably the latter for this season, are two handsome shrubs, useful alike as decorative plants, and for cutting from.

The sweet-scented Lily of the Valley, and the *Deutzia gracilis*, are probably included in every collection of spring-flowering plants. They readily associate with most other plants; to whatever purpose they are used they never seem out of place. The same remarks apply to *Cyclamen*, *Freesias*, *Primulas*, *Hyacinths*, *Narcissus*, &c., all of which are at present in flower. Many of the softer shades of colour in the Indian *Azaleas*, when a little tone is required, can be used with considerable effect, as also can *Azalea mollis*; while, if yellow is appreciated,

nothing can replace *Cytisus racemosus* and *C. r. telegens*.

In preparing plants for any system of decoration it is of the utmost importance to have the pots washed scrupulously clean. Any sticks to be used should be neatly pointed and painted, all soil surfaces covered with fresh green moss, and the plants freed from any bits which might detract from their appearance. *J. F. McLeod, Rochampton.*

"LA MAISON RUSTIQUE."

CAROLUS STEPHANOS, the author, or at least the compiler of the *Book on Gardening in France*, reviewed by Rev. George Henslow, is doubtless the same person with Dr. Charles Stevens, the origiator and part author of *La Maison Rustique*, a work devoted to the elucidation of everything connected with French country life in the sixteenth century. Stevens did not live to see his work completed, and it was left to his son-in-law, Dr. John Liebault, to carry forward to a conclusion his labours. It would appear that the book was first published about the year 1564, and up to 1582 it had passed through several editions.

The one with which I am acquainted is that of 1586, a large octavo of nearly 1000 pages, to which is appended a pamphlet on *Wolf Hunting*. The work was early translated into several languages, but Liebault was so disgusted with the imperfections of these that in this edition he mentions his purposing to undertake a translation of the work into Latin in order that people of other countries might be able to peruse his writings free from mistakes. As a complete work it did not appear in England until the year 1600, when, by the title of *The Country Farme*, a complete edition, translated by Richard Surfleet, was issued. On comparing this with the original, it is found to be so full of mistranslations, that one cannot be surprised at the mild anger of its part author. Markham's edition of 1615, with some additions, is the same as the above.

In France, the popularity of this book seems to have continued for a long time, and when at length it became antiquated and out of date, it was in last century replaced by a work of a kindred nature called *La Nouvelle Maison Rustique*, a three-volume quarto of 2500 pages, and many engravings, and which, like the work under discussion, treats of urban matters of every kind.

It will be most convenient to take *La Maison Rustique* and *The Country Farme* together, and I shall only refer to the French edition in cases where the sense of the original is lost in the English.

The work is in seven books, of which the three first occupy 630 pages, and the last four 270. The second book is devoted to gardens, but the third, treating of orchards, Vines, &c., is also of interest to horticulturists. It is, of course, impossible to apportion to each writer that part of the work for which he was responsible; but I imagine the first three and perhaps the fourth books may be attributed to Dr. Stevens. The French edition, I ought to have said, is pagged on one side only, the right hand one facing the reader. Like all works on gardening at that early date, Pliny, Dioscorides, and others, were freely copied, but apart from such matter, there remains much that was novel and interesting. It is indeed impossible to read some of the chapters on gardening without coming to the conclusion that it must have exerted a not inconsiderable influence in forming the style of gardening among a people so fond of the pursuit as the English. So early indeed as 1577 *The Gardeners' Labyrinth* contains an engraving of one of the flower-beds portrayed in *La Maison Rustique*; and in Surfleet's as well as that of Markham, all the engravings are reproduced. The work, strange to say, is passed over in silence by many modern writers, as for instance by the author of *In Praise of Gardens*. The situation of the garden was to be towards the north rather than the south of the house, whence it was entered directly. The proprietor, as "Lord of the farme," had a private doorway from his apartments, and from the windows of these he was able to overlook the whole of the ground devoted to flowers, vegetables, herbs, and fruits; whither also the smell of flowers and the humming of bees was conveyed to his senses. There were two chief gardens, and if it could be afforded, these were surrounded by a wall, though a quick-set hedge (*haie vive*) composed of Briars, Whitethorn, and Sloes; or plants of the Spindle-tree mixed with Briars was considered equally good and much cheaper. Dead hedges made of osiers, reeds, and thorns, are condemned as costly on account of requiring

annual renewal, and also because they became inefficient through quickly getting out of repair.

The kitchen garden was divided from the garden of pleasure by means of a walk 18 feet wide, and a hedge planted with wild Apples, Paradise Apples, Gooseberries, "Hasells," Medlars, Eglantine, &c. These were trimmed, and seem to have been formed into a wide wall of vegetation, in which arbours, &c., were formed. The original has "berceaux," "chappelles," and "oratoires." The English work has "contrived into arbours, or as it were into small chappels or oratories," and places to make a speech out of, that many standing about and below may hear," all of the latter part of which Surfleet must have imagined, as it does not occur in the French work. Elms are strongly recommended to be planted for shelter. Inside the kitchen garden-fence, but separated from it by a 3½-foot alley, a lattice-work trellis, over-arching at the top towards the garden, ran the whole length of the latter, and was planted with Vines for the provision of verjuice. Dwarf-growing herbs were planted in lines, one on each side at the base of the trellis, but so as not to interfere with the well-doing of the Vines.

The best kinds of wood for trellis-poles were those of Juniper, and Willows and Broom twigs were employed to tie the shoots to their positions. An alley, corresponding to that already mentioned, extended along the garden-side of this trellis, and right along the other side of this alley was a border devoted to Cucumbers, Melons, Gourds, Pompons, &c. Bacon's proposal of an arched hedge on pillars sounds grander than this, but is not so practical. In the disposal of the rest of the space, Stevens was severely utilitarian. The ground was subdivided into sections, separated by means of 3-foot alleys. Turnips filled one such section, and Coleworts another; and the others were further divided into long beds or "flores," just wide enough to reach across, and weed comfortably from the 2-foot alleys that separated the one from the other; and each was planted or sown with a particular crop.

In addition to vegetables, certain herbs found here a place. These included Sage, Hyssop, Lavender, Rosemarie, &c. "Cammomil" required a section to itself in which to grow plants "for to make seats and a labyrinth." A space set apart for physic herbs is also advised.

Several chapters discuss sowing, planting, weeding, gathering, and preserving crops and seeds; and a discussion of the length of time the latter may be kept without losing their germinating power.

Following this is a number of chapters on particular crops, the first being a lengthy one on Coleworts. Mention is made of the common Colewort, the "Choux cabus," which is called in the English edition "the white or Apple Colewort." Curled and Romaine Coles are also noted, and red Coleworts, about the existence of which the writer seems to have experienced some doubt, because he proceeds to say they are procured by watering with the lees of red wine! The unpractised reader is also warned that seed more than three years old will produce Radishes, and if not Radishes, then he may look for Turnips!

Passing over a lengthy chapter on Lettuces, the one following treats of Endive, Sow-thistle, and Succorie. Sow-thistle (*la laceron* ou *Cicerbita*) had at this time fallen into disrepute except among the Italians. It was, however, still cultivated as a garden crop, but used to feed conies and hares, the fondness of the latter animal for it procuring it the designation of *Palais de Lievre*, or Hare-taste. English names of the Sow-thistle include Hare's-lettuce, Hare's-thistle, Hare-wort, and Herb wat, wat being an old name for that timid creature, as in *Venus and Adonis* :—

"Poor wat far off upon a hill
Stands on his hinder legs with list'n'g ear,
To hearken if his foes pursue him still."

Concerning wild Succorie (*Cichorée sauvage*), it is stated the plants were covered with sand and earth—a rough-and-ready method of blanching. This plant was also called *Morsus diaboli* and yellow Devil's Bit, from its præmorse root. *Corne-de-Cerf*, or Hart's-horne, is another common weed that has in France long held a place in gardens. It is noted in *La Nouvelle Maison Rustique* as a "salladé" plant. It is *Senecio coronopus*, and is a very old garden herb, called in England "Herb Ivy" or "Herb Ive," and is the "Erbe Ivo" that growth in our yerd that merry is" of Dame Pertelot. "Triguemadam," called also Trickmadam and Prickmadam, was employed in spring salads, and appears in many early English works on gardening. It is *Sedum reflexum*, in Scotland called "Daunerin" Kate.

Marigolds procure a chapter to themselves. They

were employed in pottage, in salads, and were preserved boiled with sugar, and conserved in a dry condition. *R. P. Brotherton.*

(To be continued.)

PLANT NOTES.

ABUTILON INSIGNE.

GROWN as a climber, this little-known plant is quite effective, and flowers freely. The growths are slender, and need supporting by stakes if grown otherwise, while the pendulous side-growths, about a foot long, which bear the flowers are better seen. A plant planted under the stage, and trained upon the roof in the cool-house here, is now in bloom. These are marked with heavy rich purple lines, interlaced with a few blotches of white ground colour, and are about 1½ inches in diameter. The foliage, which is heart-shaped, is large upon the main stems, and covered by short brown hairs. An open compost of good peat and loam are essential for the cultivation of this New Grenadan species, which was introduced by Linden in 1851. *R. L. Harrow, Royal Botanic Garden, Edinburgh.*

KENNEDYA AND HARDENBERGIA.

What can our cultivators tell us about *Kennedya Merriattæ*, a form of *K. prostrata*, a cool greenhouse climber, with soft velvety foliage? It is an introduction of Baron Carl von Hügel from Australia, and was once much admired. There are others nearly as pretty, but they are fast becoming scarce in gardens. *Hardenbergia monophylla*, named in honour of Baron C. v. Hügel's sister, the Countess Hardenberg, is likewise a greenhouse climber, whose chief season of flowering is the month of April, but which shows a few blossoms in almost every month in the year. The pretty blossoms are axillary, short racemes of a purplish-violet colour. *R. M.*

A FRINGED HOLLYHOCK.

The fringed Hollyhock "*Allegheny*," which is being introduced this year, has very little in common with its parent, the old-style double Hollyhock; and a flower separated from the stock would hardly be recognised as that of a Hollyhock at all, on account of the novel arrangement of the petals, which are deeply fringed or cut, rather transparent, and of a silky texture. The veins throughout the petals give the appearance of crumpled or crushed silk, and this to such a degree that a florist of long experience refused to believe that a flower of the *Allegheny*, which a lady wore pinned on her coat, was real. *American Gardening.*

TREES AND SHRUBS.

VARIETIES OF CEDRUS DEODARA.

Of this beautiful Indian Conifer there have been introduced within recent years several varieties, which will rank as valuable trees for garden decoration, although at the present time they are comparatively unknown. *Cedrus Deodara*, the type, has been figured and described in the pages of the *Gardeners' Chronicle* more than once, and of this we now have *C. D. var. aureo-variegata*, its yellow colour being very marked. In style of growth and foliage it is exactly like the ordinary form, although the young plants exhibit more vigour. It is a sport that appeared, it is said, in a nursery in France a few years ago.

C. D. var. verticillata glauca is an older but beautiful variety that is worthy of more extensive planting. In appearance it affords a marked contrast to the type; the leaves, of a glaucous green colour, are arranged in whorls, and its growth is also more vigorous than that of *Cedrus Deodara*. *E. S., Woking.*

PRUNUS CERASIFERA.

Not one of the *Prunus* family flowers in greater profusion or with greater regularity than this species, commonly known as the *Myrobalan*. It is generally about the beginning of April that it is in full bloom, and it is then, perhaps, the most beautiful of all trees

and shrubs in flower, the whole tree being one complete mass of white. The flowers are each about three-quarters of an inch in diameter, and they clothe every twig profusely. The tree itself grows to about 20 feet in height, and being of rounded, rather spreading habit, is often wider than it is high. The leaves, which are only just in evidence at the time the tree is in bloom, are ultimately about 2 inches long, and ovate. The native country of the Myrobalan has not been definitely ascertained, but in view of its close relationship to, or more likely its identity with, *P. divaricata*, it is almost certainly from the Caucasian region.

The tree, now widely distributed in gardens, and known as *Prunus Pissardi*, is nothing more than a variety of *P. cerasifera* with reddish-purple foliage. Its proper name is *P. c. var. atropurpurea*. It is a pretty plant, either in flower, in young leaf, or in autumn before the leaves fall. But there is just a possibility that we may come to see too much of it. The overplanting of trees with abnormal characters either in habit or in colour of leaf (but more especially the latter), is a thing to be avoided. *P. cerasifera* is no less beautiful a tree than its coloured variety and (although there is room for both), I should prefer to see it planted the more freely of the two.

PRUNUS SIMONI.

This is one of the latest additions made to the Almond section of the genus *Prunus*, and is at present one of the rarest in gardens. It was, however, described by Carrière, and figured in the *Revue Horticole* as far back as 1872. In the section to which it belongs it is distinct because of its erect mode of growth. In the United States, this fastigate character is so marked as to give the species much the same general aspect as a small Lombardy Poplar. It is now in flower, its blossoms being pure white, and $1\frac{1}{2}$ inch across. The leaves are about the same as those of the common Almond, only broader at the base. There is a specimen in the Kew Arboretum about 7 feet high. Under the bright skies of California this *Prunus* bears its deep red-purple fruits freely, and promises to be of economic value on their account. It is said to be originally from China, but I do not see any mention of it in Mr. Hemsley's *Index Flore Sinensis*. W. J. B.

FLORISTS' FLOWERS.

THE HOLLYHOCK.

THERE is reason to believe that the disease once so destructive to the stately Hollyhock is less harmful than formerly, and there is a promise that this fine flower may dominate in gardens. Whatever might have been the cause of the outbreak of the disease in the first instance, which proved so destructive to many of the old-named varieties, its ravages have been stayed to a considerable extent by raising seedlings of robust constitution, and, to some extent, disease-proof. If something has been lost in the direction of size and quality of bloom by the destruction of some of the old-named varieties, there is an inducement for raisers to seek to reproduce them by improving upon what remains, and at the same time without loss of constitutional vigour.

When the Hollyhock was at the height of its popularity, excessive propagation had to be resorted to to obtain a supply, and experience teaches that this tends to physical deterioration. We may then look forward hopefully to a new race of Hollyhocks, that shall not be so disfigured by the fungus as were the varieties of a past generation.

A line of Hollyhocks along the fringe of a shrubbery-border suggests one of the most suitable positions for them. They can be dotted here and there, while some who aim at perfecting the flower prefer to have a small plantation where they can readily get among the plants; and this method is all the more desirable in cases where some blooms are grown for exhibition purposes. Classes for cut blooms still find a place in some schedules of prizes, and floricultural societies which had discarded the Hollyhock are found to be placing it among their competitive exhibits once more.

Hollyhocks should have good cultivation, as it is sometimes found that well-grown plants offer greater

resistance to the progress of the disease than do those less generously treated. The plants flourish in a good garden soil, trenched to the depth of 2 feet, with plenty of thoroughly decomposed manure mixed in with it. They will stand a strong manure; even night-soil has been employed—as a matter of course mixed with garden soil. The plants do well in a wet subsoil during summer, but in the winter, with such a condition of moisture, losses occur. Two measures have been resorted to to carry old stools of fine varieties safely through the winter. One is to lift the roots, place them in large pots, and winter them in a cold frame, but this can be done only in the case of a select and limited collection; or to secure the safety of certain varieties, an old method adopted by the late Mr. William Chater was to draw the soil away from the old stools, and fill in with some porous material, such as coarse sand, through which water would rapidly pass.

It is always best, in the case of seedlings from a fine strain obtained from seeds sown in April or May, to put them in fair-sized pots in October, wintering them in a cold frame, and planting out in April. If seeds be sown in warmth early in March, and grown on strong enough to put out in May, they will flower the same season, which is a decided gain in point of size.

The liking of the Hollyhock for water during summer is great. It is gross feeding and plentiful watering which produce large and handsome blossoms; liquid-manure or dressings of guano are very helpful; in applying these it is well not to place or pour them too near the stem, but to take care that they can find their way down to the roots, and give them that support they need. R. D.

THE WEEK'S WORK.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

The Peach house.—After the fruit is stoned, the warmth may range from 60° to 65° by night, 70° on sunless days, and 80° to 85° with bright sunshine beyond this; and when closed, and the trees are syringed, it may rise to 90° without injurious effects. The most should be made of the hours of sunshine, and ventilation should be abundant or stinted in accordance with the state of the weather. By allowing warmth in the hotwater-pipes to rise at an early hour in the morning, a temperature of 70° may be attained by 9 A.M., or earlier; and then on mild days it will be possible to afford some amount of air at that time, or soon afterwards. As the sunheat increases, the pipes should be allowed to cool till closing-time, when an increase may again take place. Be careful to avoid the aridity caused by highly-heated hotwater-pipes, and a higher night temperature than that given above. Let the trees be syringed with tepid water twice a day, and damp down as well if the air of the house feels dry. There must be no lack of moisture at the roots; all the same, the practice of affording dribbles and keeping the borders saturated should be avoided, but wait till the soil actually wants water, then afford it copiously. If the border is an old one, and the soil poor light loam, manure-water may be occasionally afforded during the final swelling of the fruit. As colouring begins to take place, put aside or remove wholly or in part these leaves that shade the fruit from the sun. Let the shoots be secured to the trellis at short intervals of time, and endeavour to bring this kind of work to an end before the fruit ripens, so as not to have to carry it on whilst the latter is on the trees. When colouring begins, afford more air and less water to the soil, and stop the syringing of the trees. After stoning, the final thinning should be done, healthy vigorous trees may be allowed to carry one fruit for every 9 inches square for middle-sized varieties, and 1 foot square for large ones. Weak or very aged trees should not carry so many fruits. Nectarines may be left at one fruit for every 9 inches square, unless weak or aged. Whilst Peaches are stoning, a warmth of 5° less will suffice than that given above. Former directions as to disbudding, training, &c., should be carried out.

Late Houses.—When the leaves begin to expand, disbudding must receive attention as in the case of the early forced trees. Some varieties set their fruits at this season very freely, and even those which do not usually fruit abundantly; and in cases where two fruits set at about one point the smaller should be removed, as well as all fruits found between or behind the shoots. When of about the size of a Hazel-nut, thin them down to about twice the number that will at last be

left to ripen, going over the trees several times at intervals of a week, and thin out the smallest and worst placed. The degree of warmth to be maintained after setting will depend upon the date at which fruit is required, that is, whether it is to come on in the ordinary course, or it is desired to retard them by free ventilation, but still without unduly checking progress.

Peach and Nectarine trees in Pots.—The usual shape of these trees is somewhat columnar, and disbudding will require to be carefully done, the method being much the same as that adopted for fan-shaped wall trees. On each side branch near to the base, one young shoot or even two may be left, and one beyond the fruit. Some of the superfluous shoots may be taken off, and some left to be taken off a few days later. Where there is fruit and a young shoot from the same joint, pinch out the point from the shoot when it is an inch long. The number of young shoots to be left at the base of the leader depends on the increase of height required, and further on, one should be left as a leader. The trees should stand on a cool moist bottom, and the application of water at the root must be carefully guarded against, giving them an examination every day, and in very hot weather twice. In other respects the treatment of the Peach and Nectarine in pots, is the same as for plants in borders.

HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Strawberry Beds.—Hoe the beds through during dry weather, for the purpose of destroying small weeds, so that the land may be thoroughly cleaned before it is time to put on a mulch. Such perennial weeds as Couch-grass, Docks, Dandelions, &c., should be removed by extracting the roots before they have time to establish themselves; at the same time, care must be exercised not to injure the roots of the Strawberries, which are more than usually susceptible to injury by root disturbance. When Strawberry plants have become established in the beds all the cultivating that is required may be done with the hoe and rake. Owing to dry weather and the absence of frost, the manure that was put on as a top-dressing during the autumn has not decayed, and will need to be stirred about with the rake until it is broken up. To obtain extra strong runners for early planting, a number of strong and healthy plants should be reserved exclusively for this purpose, and the flower-stems pinched off as soon as they can be seen, which will cause the whole of the plant's strength to be diverted to the production of runners.

Peach and Nectarine trees have made little progress in the Midlands during the recent cold weather, but attention to the means of protection previously advised has preserved the flowers from injury, and the fruits have set well. In warmer districts the trees are probably ready to be again disbudded, and all shoots necessary to be retained for the building up or extension of the tree will have now to be selected. It is well to leave two of the best placed at the base of each branch until one of them gets a good lead, and can be tied in; and let these spring from the upper sides of the branches nearest to the centre of the tree. If the trees are trained on this principle they will be the more uniform in growth, cover the walls better, and be much easier to regulate should a branch die. The remaining shoots on the branches should be further reduced to 3 inches apart for the present, preserving at the same time all the best placed and strongest fruits. The work of disbudding requires much judgment, for if too many buds be removed at one time, a check will result, and many of the fruits will turn yellow and fall off. Let means be taken to prevent aphides from increasing among the young leaves, or much damage will be done. Tobacco-powder is the safest remedy, and may be effectually applied when the foliage has been previously sprayed by means of a syringe.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Liliums.—The early batch of *L. longiflorum* var. *Harrisii* being now at the point of flowering, should be removed to the intermediate-house for three or four days before taking the plants to the cool conservatory or greenhouse; the stamens should be cut off at the earliest opportunity, and before the pollen has fallen on the petals and spoilt their purity. To remove the stamens, moreover, prolongs the life of a blossom. Some more bulbs may be placed in heat, in order to keep up the succession, should the late potted bulbs not be sufficiently forward. *L. auratum*, and *L. spe-*

ciosum, which were potted early will now be growing, and in need therefore of a light position to prevent etiolation. They should be stood on coalashes, and afforded water very carefully, and plenty of air in fine weather. Lilies for late-flowering may still be potted, placing them behind a north wall or similar cool spot, covering the pots with moss, or inverting other pots over them till such time as growth commences.

Gladiolus.—The early-flowering varieties, or those that were potted early, may be gently forced into flower. The *Gladiolus* will not stand much forcing, the flower buds turning yellow and dropping off if it be attempted. The general stock should be grown on steadily for the present in a cool house or pit.

Iris sibirica, when grown in pots, is valuable for supplying flowers for cutting, for filling vases, &c., and for dinner-table decoration. It cannot be forced, and cool treatment must be afforded always, potting the bulbs early in the autumn, and growing them on steadily throughout the winter, a kind of treatment that brings the plants into flower three weeks or a month before those out of doors.

Genistas (*Cytisus*).—Any of these plants that are about to go out of flower, may have all the weak shoots removed, and the chief ones shortened sufficiently to make shapely plants, and those plants which are in need of more rooting space may be repotted forthwith. To start the plants into growth, place them in an intermediate-house, and syringe them daily. If infested with scale, let the plants be cleansed before growth ensues. Do not crowd the plants together, but afford them full light or they will not flower satisfactorily. Cuttings should now be made and put in, selecting for this purpose shoots that have no flowers and have not flowered, and insert these to the number of five or six round the rim in pots filled with light sandy soil and coated with fine clean sand. Strike the cuttings in moderate heat; some few plants should be raised every year, and those that have been cut back for two or three years thrown away.

Abutilons placed against walls or pillars in conservatories should be pruned hard, as by doing this and judiciously thinning the weaker shoots when growing ensures a lengthened period of flowering. When planted in severely restricted borders, a portion of the surface soil should be removed annually and replaced with rich pasture-loam and decayed manure. Cuttings of the dwarf, free-flowering varieties may be struck in heat at this season, and those which were struck some time ago may be put into the pots in which they are to flower.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorking.

Dendrobiums have formed a prominent feature in the houses for several months past. Owing to the case wherewith the majority of them may be cultivated, and the large number of distinct varieties now obtainable, no group of Orchids is more valuable to the amateur than this one. Little space is sufficient to accommodate them, and when well grown the plants produce an abundance of blossoms of great value for decorative purposes. The following very select sorts are worthy of every attention:—*D. Wardianum*, *D. crassinode*, *D. Findleyanum*, *D. Falconeri giganteum*, *D. albo-sanguineum*, *D. crispdatum*, *D. cretaceum*, *D. primuminum*, *D. tortile*, *D. superbum*, *D. lituiflorum*, the numerous forms of *D. nobile*, and the following hybrids: *D. micane*, *D. Clio*, *D. Enterpe*, *D. Venus*, *D. Dominii*, *D. endocharis*, *D. Sybil*, *D. Apollo grandiflorum*, *D. melanodiscus*, *D. Juno*, *D. Burfordiense*, *D. Wigane*, *D. euosmum leucopetrum*, *D. s. virginalis*, *D. Aspasia*, *D. Rainbow*, *D. Cordelia*, *D. Ainsworthi*, and all its congeneric crosses, of which may be mentioned *D. splendidissimum grandiflorum*, and the new Woodhatch variety. The majority of these plants having now flowered, are making new growths, which when only a few inches high, emit roots that delight to run into fresh compost, and no time must be lost in satisfying this requirement. Plants that have already sufficient root-space, and are in a strong, healthy condition, will need only to be re-surfaced. Before commencing this work, allow the old material to become dry, as it can be more easily removed when in that condition, then pick out as much of it as possible, even to the crocks, and if necessary the drainage may be improved. In all such operations the greatest care is necessary to prevent injury to the roots. Let the compost consist of equal parts peat and sphagnum-moss, with a free addition of clean crocks. In most collections there will be some plants that have deteriorated

and such should be turned out of their pots, and all decayed roots cut away, afterwards cleansing the remaining ones in tepid rain-water. It will be best to put such plants into very small pots, affording plenty of drainage, and using sphagnum-moss only for them to root into. In the case of established plants, remove no more of the old material than is really necessary, and thus avoid unnecessary root-disturbance. At Burford we carefully break the old pot, and take away as much of it as is practicable; and if the drainage be encircled with living roots, it is not disturbed, but a little of the old compost on the surface is removed, and that around the sides carefully loosened. The plant is then placed into a pot one size larger, which is filled up with clean crocks to within an inch of the rim. The new compost is then made moderately firm around the plants. For a few weeks succeeding such work keep the plants rather on the dry side, and as the young growths lengthen and send forth roots, the amount of water given may be gradually increased. Prevent water lodging in the young growths, as they are liable to rot from this cause. Sponge the under-sides of the leaves often enough to keep them free from red-spider and Thrips. When the plants are thoroughly re-established, and the roots are clinging around the sides of the pots, the foliage may be finely sprayed with tepid rain-water at closing-time on warm, sunny afternoons. All the *Dendrobiums* mentioned require a hot, moist atmosphere, and an abundance of light. The Australian *D. superbium* will now be starting into growth, and will also require to be repotted. Such strong erect-growing plants as *D. nobile*, *D. Linawianum*, *D. Dominii*, *D. Burfordiense*, and the *melanodiscus* and *chrysodiscus* crosses grow well enough in ordinary flower-pots, while those with pendulous stems should be given shallow hanging-pans with perforations around their sides. I use these pans in preference to teak baskets, because the plants are more readily managed when they require a shift. Propagation of the *Dendrobiums* already enumerated may be effected by taking off any of the pseudo-bulbs which have not flowered, cutting them up in lengths, and laying them on sphagnum-moss in a hot propagating-case. Where no such convenience exists, the troughs on the hotwater-pipes may be made use of by half filling them with damp sphagnum-moss, and placing over them pieces of glass to prevent evaporation. After a few weeks young shoots will appear upon the stems, and immediately they commence to emit roots they should be severed and potted in sphagnum-moss only, and afterwards given the same kind of treatment as older specimens. The present is a suitable time to pot off young seedling *Dendrobiums*. They grow vigorously when potted in sphagnum-moss, well mixed with small crocks; but when they arrive at the flowering stage, fibrous peat should be added to the moss.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Sowing Grass Seeds.—The present is a very suitable time for sowing seeds of lawn grasses, and for renovating old lawns by turfing or sowing. In the formation of a new lawn, level the ground evenly in the first place, then rake it well, and afterwards afford it a good rolling, and finally go over every bit of it to make sure it is perfectly level, making up all uneven places firmly, employing for this purpose loamy soil. When this is done, the ground will be ready for the seed; and now comes the most important factor, viz., good seed. Never sow seed which has been obtained from mangers and cow-cubs, as in all probability there will be many weed-seeds and unsuitable species of grasses. Rather procure seed from a nurseryman of repute, and have mixed with it Clovers of low growth, namely, *Trifolium repens* or *T. minus*. Some cultivators sow Clover separately, and hack it in before sowing the grasses. Lawn mixtures may be sown at the rate of 50 lbs. to the acre, and it is always better to sow too thickly than too thinly. [In order to make sure that the grasses are of the right species and in the desired proportions, the following formula, which may be accepted as being of utility in average soils, is given in the *Gardeners' Assistant*, p. 692, as being the quantities required for sowing an acre:—*Lolium perenne tenue* (Rye-grass), 20 lb.; *Cynosurus cristatus*, 5 lb.; *Festuca duriuscula*, 3 lb.; *F. ovina tenuifolia*, 2 lb.; *Poa nemoralis*, 2 lb.; *P. semper-virens*, 2 lb.; *P. trivialis*, 2 lb.; *Trisetum flavescens*, 1 lb.; *Trifolium repens*, 6 lb.; *T. minus*, 2 lb.; total, 45 lb. Ed.] Choose a fine, still day, and distribute the seed evenly over the surface of the ground, hack and rake it in with a wooden rake having

close-set teeth, and afford the ground a thorough rolling. If the weather is favourable to seed-germination, in about two months from sowing the whole will have become green. The roller should then be passed over it again, in order to make the soil firm about the roots of the grasses, &c. Do not allow any one to tread on the land, and take care to scare away the seed-eating birds. For the first year, the scythe only should be used in cutting the grass, and during the heat of summer, once a fortnight will be often enough to mow. The roller should be passed over a new lawn before each mowing. In very dry weather, applications of water may be necessary if the soil is of a light character. It is the usual practice to place strips of fine green turf, 6 inches wide, round the margin of a lawn that is to be sown, the edges of dug ground being of too loose a nature to afford the necessary protection to walks and beds. If an old lawn is overrun with moss, the latter should be scratched off with iron rakes having sharp teeth, and the land slightly loosened with a digging-fork, and some good loam spread over the bare parts, and beaten down hard with the spade, or rolled. Grass-seeds and Clovers being then sown, and raked in, and again beaten with the spade. Under trees and in shady places, where the grass habitually dies, the ground should be slightly loosened, and some finely-sifted loamy soil spread over it, and be sown as in the former case, not rolling it very much. The drip from the trees makes the ground uncommonly hard, and difficult for the grasses to establish themselves, and special mixtures of grasses should be employed for sowing shady lawns and the land under trees. Old lawns, if not in a very bad state, may be renovated by means of special artificial manures, or by spreading wood-ashes, sifted loam, leaf-mould, and decayed stable-manure; light land being afforded stiff loamy soil, and heavy land soil that is rather lighter. Fish-manure has a lasting and beneficial effect on lawns, but it has an objectionable odour for some time after use. Lime has a good effect on soil having an excess of humus; and nitrate of soda is good for soils deficient in nitrogen, but this substance has a better effect when afforded in conjunction with farmyard-manure, the latter being laid on the lawn in the winter and the nitrate in spring and early summer.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

Large Onions.—Onions that have been pricked out into frames and boxes should be given as much air as possible during mild weather, and thus be slowly hardened-off before transplanting them into the open garden. When this is about to be done, choose a piece of land that has been deeply dug and well manured, and prepare the surface of the ground as in the case of sowing spring Onions. Put the plants out in rows 16 inches apart, allowing 9 inches between each plant. A mild showery day is most suitable for the work.

Beetroot.—To prevent the roots from becoming forked or otherwise ill-shapen, the ground for this crop should be trenched not manured, and be thoroughly well worked with the digging-fork. Sow the seed thinly in drills 12 inches apart and 1 inch deep. Varieties that produce even-sized roots of good colour are Blood-red, Pineapple, Cheltenham Green Top, and Pragnell's Exhibition.

Broccoli for the Main Crop.—Seeds should now be sown in drills half an inch deep, and 9 inches apart, on a warm, open border. Label each variety to prevent mistakes, and protect the seeds from the birds. To provide a regular supply I have found the following sorts excellent:—For autumn and early winter, Veitch's Self-protecting and Michaelmas White; for winter supply, Sutton's Superb Early White and Snow's Winter White; for spring use, Veitch's Maincrop, Leamington, Sutton's Snow White, and Knight's Protecting; for late spring and early summer use, Veitch's Model, Sutton's Continuity, Late Queen, and Methven's June. Make another sowing towards the end of this month of seeds of the Early and Late Purple-sprouting Broccoli.

Brussels Sprouts.—Make another sowing of Sprouts on the open border. Plants that have been raised under glass should be pricked out into rows 6 inches apart on a sheltered border. Occasional waterings in dry weather will do much to strengthen the young plants.

Curled Kale.—Sow seeds of Exquisite Curled, Dwarf Late Curled, and Cottager's Kale, in drills or beds, proceeding the same as when raising Cauliflowers or Cabbages.

Celery.—Make another sowing of seeds for a successional crop, as recommended on p. 182.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, APRIL 16 { Ghent Quinquennial Horticultural Exhibition (open until 24th inst.).
WEDNESDAY, APRIL 20 { York Florists' Spring Exhibition.
Durham, Northumberland, and Newcastle Horticultural Society's Spring Exhibition (2 days).
THURSDAY, APRIL 21—Linnean Society Meeting.

SALES.

TUESDAY APRIL 19 { Roscs, Greenhouse Plants, Hardy Perennials, &c., at Protheroe & Morris' Rooms.
WEDNESDAY, APRIL 20 { Japanese Lilies, Roses, Tuberoses, Palms, &c., at Protheroe & Morris' Rooms.
Border Plants, Liliiums, Bulbs, Palms, &c., at Stevens' Rooms.
FRIDAY, APRIL 22 { Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—48.8°.

ACTUAL TEMPERATURES:—

LONDON.—April 13 (6 P.M.): Max., 58°; Min., 44°.

PROVINCES.—April 13 (6 P.M.): Max., 54°, York; Mid., 43°, Shetland.

Soudanese Cereal.

M. DYBOWSKI contributed a paper on this subject to the Academy of Sciences, from which

we take the following particulars:—The natives of the Soudan have not, hitherto, included cultivated European cereals in their diet. These are replaced by Maize, Sorghum, and mountain Rice. To these cereals, the use of which has long been known, must be added another, in wide-spread use. It is a plant with slender branches, thin ears, and producing a grain much in request with the Soudanese, to whom it furnishes an important proportion of their regular fare.

This cereal is known, botanically, as *Digitaria longiflora* of Persoon, or *Paspalum longiflorum*, Retz.

It grows wild in all the tropical and sub-tropical regions of the old world, where it sometimes covers vast plains. But it is nowhere used as food save in the western Soudan. Capt. BINGER, in the account of his remarkable journey, says that it is included in the diet of the natives of the central Soudan.

In French Guinea, in Fouta-Djalon, where it is known under the native name of *foundounié*, it is systematically cultivated.

The cultivated plant differs from the wild type in having thicker and more ovoid seeds; it is also entirely glabrous, while in the wild state it is hispid. Further, the glumes do not adhere firmly, and the seed can be ground very easily.

In French Guinea the method of cultivation is to scatter the seed on the soil after freeing it from the "brush" by burning. In three months the plant develops and bears seed. These are easily separated by threshing. They are ground by pounding them in a wooden

mortar. The semolina thus obtained constitutes a fare of high nutritive value.

Chemical analysis shows that the composition of these seeds closely resembles that of Rice, though distinguished by a greater proportion of fatty matters, which are found in an appreciable quantity, equal to that discoverable in Millet.

CHEMICAL COMPOSITION OF SEEDS OF *PASPALUM LONGIFLOREM* COMPARED WITH OTHER CEREALS.

	Buck-wheat.	Rice.	Maize.	Barley.	Rye.	Wheat.	Millet.	Paspalum.	Components.
	11.93	13.11	13.12	13.77	15.06	13.65	11.66	9.29	Water ..
	10.30	7.85	9.85	11.14	11.52	13.35	9.25	7.67	Protein ..
	2.81	0.88	4.62	2.16	1.72	1.75	3.50	5.34	Fatty matters ..
	55.81	76.52	68.41	68.93	67.81	67.91	65.95	77.33	Starch and dextrine ..
	16.43	0.63	2.49	3.31	2.01	2.53	7.29	2.56	Woody matter ..
	2.72	1.01	1.51	2.69	1.81	1.81	2.35	3.90	— ..

The bran is proportionately but little abundant. It represents 9.75 per 100 of the weight of the seed. Microscopical examination shows that starch-grains of *Paspalum longiflorum* have a great analogy to those of Maize, from which, however, they are easily distinguished by their smaller size, as they never measure more than 19 thousandths of a millimetre. All the starch-grains have an appreciable uniform bulk, and few are met with measuring less than 12 thousandths of a millimetre. The form of the hilum also presents a quite distinct visible character; it is, in fact, broad and wrinkled. Owing to its nutritive qualities and the facility with which it can be cultivated, this grass deserves to be reckoned among the most useful cereals; it is perhaps worth while to encourage the growth of it in the colonies.

The Mildews of Cereals.

An interesting paper by M. JAKOBERIKSSON has just appeared in the *Revue Générale de Botanique*, February, 1893, p. 33, entitled "Principaux résultats des recherches sur la rouille des céréales exécutées en Suède." An English version may be found in the *Botanical Gazette* (Chicago), January. The author gives a table showing that in 1890 only three species of Puccinia were known, viz., (1) *P. graminis*, (*Æcidium Berberidis*); (2) *P. rubigovera*, (*Æc. Asperifolii*); (3) *P. coronata*, Corda (*Æc. Rhamni*); and one variety of the second, simplex. The first had been found on the four cereals, Wheat, Rye, Oat, and Barley; the second on Wheat and Rye; the third on the Oat, while the variety simplex occurs on Barley.

The first species has been subdivided into two, viz., *P. graminis* (black mildew), and *P. Phlei-pratensis* (no *Æcidium*); simplex has

been raised to a species, and three new ones have been discovered; *P. glumarum* (a yellow mildew, no *Æcidium*); *P. dispersa* (a brown mildew, *Æc. Anchuse*), and *P. coronifera*, (*Æcidium Rhamni Cathartice*).

Of these species *P. graminis*, which is known to attack above a hundred different species of grass, has six distinctly "specialised" forms; and the remarkable discovery about them is, that certain of these "forms" present no morphological differences whatever, neither externally nor microscopically. One cannot distinguish them either by size, colour, or distribution of the pustules, nor by size or structure of the spores. Nevertheless, there are real differences in their natures, inasmuch as each "form" of the same species is invariably linked with the special kind of cereal it attacks. Hence, though the author uses the word "form," he applies the word "specialised." A rare exception occurs, in that one of the black mildews can attack both Barley and Rye.

Including all the wild grasses attacked, there are thirty different forms of mildew, which are correlated with the seven different species of the genus Puccinia. Hence, a much greater restriction exists than was thought to be the case, in indiscriminate propagation of *P. graminis* among various members of the grasses. Omitting exceptions, there are eight forms of mildew which attack cereals, and eleven other forms are absolutely localised upon single species of grasses respectively. Hence, one cannot regard wild grasses as furnishing a source of contamination to cereals.

A question might arise whether one and the same *Æcidium berberidis* could supply all the forms of *P. graminis*. Experiments have demonstrated the contrary, for the form of *Æcidium* which produces the black mildew of the Oat can only communicate it to the Oat, similarly for the Rye, Barley, &c. Hence, such is an additional restriction to indiscriminate contamination.

The first form of *P. graminis*, called Secalis, can attack Rye, Barley, three wild species of Triticum, Elymus and Bromus; now *T. repens* is more abundantly attacked than all the other grasses in central and southern Sweden; but still Barley and Rye, when growing close by, are but slightly touched. Experiments corroborate this, for Barley sown side by side with badly-affected Couch-grass remained unaffected. It is well known that different varieties of cereals have different resisting powers, and even separate clumps of the same species of grass vary in this respect. The general conclusion, therefore, is, that the spread of the mildew from plant to plant is often very slight, whether it be between different species, which can be affected by the same form of fungus, or between the æcidio- and the uredo- and the telento-spore-bearing plants; or, again, between different sorts of one and the same species of cereal, or between different plants of the one and the same species of wild grass.

The next point observed was the remarkably feeble and capricious powers of germination possessed by the mildew. The author mentions the fact, that the ancient Romans remarked that an alternation of cold nights and hot days is favourable to the development of mildew. M. ERIKSSON has taken this from PLINY, who thus writes:—"Mildew attacks corn most frequently in localities exposed to dews and in valleys, which have not a thorough draught for wind: windy elevated spots are totally exempt from it (*Nat. Hist.*, Bk. xviii., c. 44). In the 68th chapter, he adds:—"Most writers say it is



FIG. 85.—A VIEW IN MR. ARDERNE'S GARDEN, CAPE TOWN : EUCALYPTUS GLOBULUS IN THE FOREGROUND. (SEE P. 233.)

dew, scorched by a burning sun, which is the cause of mildew; but incorrectly in my opinion, which is, that all blights are caused by cold;" but as he goes on to attribute it to the moon at night, we need not follow him further! Our author now proceeds to say that the difficulty or capriciousness in the germination, partly accounts for the feeble propagation, but not altogether; for even with these kinds, the spores of which propagate easily, the spread of the disease is limited. With regard to the distances, it was previously thought that spores could travel very far, even 300 miles in the regions of the Himalayas; but in 1875, M. J. KÜHN came to the conclusion that 100 mètres distance would prevent contamination between the Barbery blight and Wheat. The author made many experiments, and found that 10 to 25 mètres even, was the greatest distance for infection. Hence he concludes:—"The propagation of mildew depends upon the distance between the plants affected, and those which are healthy. This distance is never considerable."

With regard to the conditions of germination, he found that teliospores could only germinate when they had been exposed to the air and natural states of cold, to snow or rain, &c. Hence, affected chaff mixed with grain in the barn affords but little fear of propagation of the disease; moreover, teliospores of the previous year are the only ones which can germinate in spring.

Besides the preceding negations, it remained to discover the positive cause or source of the transmission of the disease. Two observations led the author to a subsequent discovery of great interest. He noticed (1) that the yellow mildew, *P. glumarum*, appeared regularly and in abundance upon certain varieties of Wheat and Barley, four or five weeks after sowing; (2) that the intensity of the disease was more particularly noticeable in the more sunny parts of the field than in the shady places. He then proved by experiments, excluding all chances of external contamination, that the yellow mildew appeared after six to eight weeks, notwithstanding. Hence the disease was in the grain itself, transmitted from the mother-plant. The author discovered how the germs of the disease existed in the grain; he thus writes: "In the immediate neighbourhood of the first spots of yellow mildew the chlorophyll-cells enclose special plasmatic corpuscles, of an oblong form, more often slightly curved, solitary, or united within each cell." "I am led to regard these plasmatic corpuscles, floating freely in the cell, as being the primordial form under which the plasma of the fungus exists. It is a 'myco-plasmatic' state within the protoplasm of the host-plant, and mixed with it, constituting a sort of symbiosis. At a certain moment, and under the influence of external agencies, the two beings thus intimately blended, separate. One sees first some corpuscles of a definite form appear, then a mycelium; and lastly, the spores are not slow to follow."

Hence, the origin of the mildew in cereals can proceed either from an internal germ of the disease in the grain of the cereal itself, or it can arise by contamination from highly-infected plants. The intensity of the disease depends first, upon the energy with which external circumstances (weather, soil, manure, &c.) are capable of developing the fungus from the myco-plasmatic state to that of a mycelium; and secondly, from the intervention of new contagious matter from without.

A VIEW IN MR. ARDERNE'S GARDEN, CAPE TOWN (*Supplementary Illustration*).—We have during recent years afforded our readers several views taken in Mr. ARDERNE'S charming, unconventional garden. These views will have served to indicate a style of planting and of arrangement of trees, shrubs, and herbaceous perennial plants that is rich in pleasing effects, and as far removed as possible from the still too prevalent formality of gardens at home. Certainly, it is only in the warmer parts of England, Ireland, and South-western Scotland that we can with safety plant *Eucalyptus globulus*—the noble tree in the foreground of our illustration—or other species in the open air; but we possess many hardier species of trees as noble in port, and quite as distinct and telling in appearance; and much of the decorative vegetation of low growth observed in the view is available in gardens almost everywhere in these islands, with or without protection in the winter. Our illustration shows a part of the garden adjacent to Mr. ARDERNE'S house, the upper story of which is seen in the middle distance. The scene was photographed by Mr. A. JARMAN, of Claremont, Cape Colony.

BOTANICAL MAGAZINE.—The April number contains descriptions and coloured plates relating to the following plants:—

Allium Schuberti, Zuccarini, t. 7587.—The spreading leaves of this extraordinary species are 1 foot long by 2 inches in breadth; the numerous flowers are borne in simple umbels placed at the top of a scape, the pedicels from 2 to 10 inches in length; the spreading perianth is 3 inch across, 6-parted, and of a pale red colour. Native of Western Asia. Kew.

Myosotis dissitiflora var. *Dyeri*, t. 7589.—The original *M. dissitiflora* was described in our columns by Mr. BAKER, in 1868, vol. i., p. 599. The present figure represents a variety with taller stature and larger flowers than the average, and which has been dedicated to Mrs. DYER, to whom the Royal Gardens at Kew are indebted for many rare and interesting plants collected in Switzerland.

Crocus Malgi, Visiani, t. 7590.—A white-flowered species with a golden-yellow throat. Native of Dalmatia.

Rhamnus Ribes, Linnaeus, t. 7591.—An Armenian species, remarkable for its puckered leaves and handsome panicles of red-winged fruits.

EARLIER OPENING OF KEW GARDENS.—In the House of Commons on the 4th inst., Mr. YOXALL asked the First Commissioner of Works if he could now arrange for the Royal Gardens at Kew to be opened to the public at an earlier hour than noon, and on what date the grounds surrounding the QUEEN'S Cottage were to be formally added to the Kew Gardens? Mr. AKERS-DOUGLAS said he had decided to admit the public to Kew Gardens, not including the plant-houses, at an earlier hour than noon on week-days in the ensuing months of June, July, August, and September. He should be in a better position later on to judge of the extent of the demand by the public for this earlier opening. There were details involved in this proposal into which he was having an enquiry made, and he hoped to give further information in a few weeks' time. He hoped that the QUEEN'S Cottage-grounds might be formally added to the grounds about June 1, but he could not absolutely bind himself to the date. Mr. YOXALL: "Can the right hon. gentleman state at what hour in the morning the gardens will be opened?" Mr. AKERS DOUGLAS: "That is really a question with which the committee now sitting is dealing, and perhaps the hon. member will allow me to answer this question in a few weeks' time, when I will give fuller details." With reference to the earlier opening of the Gardens, it must be remembered that admission is already freely granted on application to gardeners and students. The demand now made comes from what we may term the local nursemaid element, already well provided for in the neighbourhood. If they can be admitted without interfering with the legitimate work of the garden, well and good; if not, their claims are the last to be considered.

ROSE SHOW FIXTURES IN 1898.—The following fixtures have been made since the list appeared in our issue for March 19:—July 5 (Tuesday), Hereford; July 6 (Wednesday), Tunbridge Wells; July 7 (Thursday), Woodbridge; July 9 (Saturday), Manchester; July 13 (Wednesday), Ipswich; July 21 (Thursday), Sidcup. The next list of fixtures will appear early next month. In the meantime, Mr. EDWARD MAWLEY, Rosebark, Berkhamsted, Herts, will be glad to receive the dates of any Rose-shows, or other horticultural exhibitions where Roses form a leading feature, for insertion in that list.

SPRAYING TO PREVENT THE GOOSEBERRY-MILDEW.—Mr. C. P. CLOSE, of the New York Agricultural Experiment Station, publishes the following summary of his experiments:—"For ten years this station has advocated potassium sulphide as the best remedy for Gooseberry-mildew. In the season of 1897, potassium sulphide, Bordeaux Mixture, lysol, and formalin were tested side by side. The plantation was divided into six sections. In two of these the spraying was begun very early, just as buds were breaking; in two others eleven days later; and in the remaining two sections twelve days after the preceding two sections. The first mildew appeared May 26. By June 7 portions of the plantation were badly mildewed. At this date the lysol and formalin seemed to have done no good. Bordeaux Mixture was more effective, but not so good as potassium sulphide where the treatments were begun very early and medium early. All of the fruit was picked July 6 and 7 so as to market it green. Bushes sprayed very early with potassium sulphide at the rate of 1 oz. to 3 gallons of water gave only 5 per cent. of mildewed fruit; those sprayed very early with it at the rate of 1 oz. to 2 gallons of water gave 6.6 per cent. Bushes sprayed very early with lysol, 1 oz. to 1 gallon of water, gave 24.5 per cent., and those sprayed very early with Bordeaux Mixture gave 37.4 per cent. of mildewed fruit, while the untreated bushes gave 57.7 per cent. to 78.7 per cent. The foliage was not injured by any of the fungicides. At 18 cents per pound for potassium sulphide, the cost of the solution which gave the best results is about one-fifth of one cent per bush for the seven sprayings. The station recommends potassium sulphide, 1 oz. to 3 gallons, or 1 oz. to 2 gallons of water, as the most effective fungicide for Gooseberry-mildew. As a rule, only the English varieties and their seedlings are attacked by mildew, although the American varieties are not always exempt."

THE SOVRAN LETTER-CARDS.—The Sovran Card Co., of King Street, Covent Garden, have recently brought out some new varieties of letter-cards. These novelties are of four forms or patterns—A., which is intended for all communications admitted at the halfpenny rate of postage; B., for closed correspondence at a penny postage, with a reply-card attached; C., similar to B., but including two reply-cards; and D., like C., but intended for transmission at a halfpenny. Patterns A. and D. have an ingenious contrivance for closing by means of tongues of card fitting into corresponding slots; the penny postage patterns close with gum. These letter-cards are ingenious, and especially suitable for business correspondence, whether written or printed (circulars, for instance), as they are quicker to fold and close than note-paper and an envelope. The prices are extremely moderate.

"THE COUNTRY GENTLEMEN'S CATALOGUE."—Published by EDEN FISHER & Co., of Clement's Lane, Lombard Street, E.C., is a publication likely to be very useful in the study of the squire or in the estate office. A full index greatly adds to the utility of the work, which is devoted to the enumeration of requisites for the house, field, garden, &c. At p. 65, in the last paragraph, on the "Future of Wheat-growing," there is an ambiguity, owing, we suppose, to some accident in the printing-office.

MONUMENT TO JEAN LINDEN.—It is proposed to erect, probably at Brussels, a monument to the memory of the botanical traveller who enriched our gardens with so many choice plants. The President

of the committee is Comte KERCHOVE DE DENTERGHEM; the treasurer, M. KEGELJAN of Namur; and the Secretary, M. LUBBERS, the Curator of the Brussels Botanic Garden.

PALMS OF MATTOGROSSO.—The Director of the Botanic Garden at Rio Janeiro, Senr. J. BARBOSA RODRIGUES, has lately published a monograph of the Palms of this district, accompanied by twenty-seven lithographic illustrations. The species and varieties number nearly sixty. Among other things, we note a synopsis of the species of Cocos native to Brazil, and therein, under the section Glaziovæ, is included the Cocos Weddelliana, Wendland, which has been the subject of enquiry lately. This Palm is stated to be known at Rio by the vernacular name of Iká.

A BRANCH OF THE NATIONAL CACTUS SOCIETY.—A society is being formed to be called the Bath and West of England Cactus Society, affiliated with the National Cactus Society. The secretary is Mr. O. G. McLAREN, Oldfield Road, Bath. A show of Cacti in bloom will be held in connection with the Bath Flower Show on June 23.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We desire to draw special attention to the letter of Mr. INGRAM, in our last issue, relating to the Victorian Era Fund. It will be remembered that some dissatisfaction was expressed at the result of the ballot, according to which a non-subscriber came out at the head of the poll. By the agency of the Victorian Era Fund, the unsuccessful candidates at any election, and who have been subscribers in past years, receive gratuities at the rate of 15s. for each year they or their husbands had subscribed. This is an excellent scheme; and we earnestly hope that additions to the Fund will be made, so that increased help may be given to those who need it.

LECTURE ON FRUIT GROWING FOR PROFIT.—A lecture on the above subject was delivered by Mr. D. BUCHANAN, Forth Vineyard, Kippen, in the Canrick Street Hall, Ayr, on the evenings of Thursday and Friday last, under the auspices of the Ayrshire Gardeners' Mutual Improvement Association. Mr. JAMES BOYD, Stewartlea, Vice-President of the Association, presided, and there was a large attendance both evenings. The lecture was of considerable length, and Mr. BUCHANAN laid most stress on the profits likely to arise from fruit-growing as it can be carried out in Scotland, touching upon the cultivation of Apples, Strawberries, and Gooseberries out of doors, and of Grapes and Tomatos under glass, going pretty fully into the economical side of the question.

ROSA GIGANTEA.—We were informed some days ago that a plant of this species in the garden of Lord Brougham, at Canues, had some thirty flower-buds upon it, most of which have probably by this time expanded.

CAPE FRUIT.—The Union Steamship Company's steamer *Guelph* has arrived with 594 boxes of Grapes. Unfortunately, all arrived in very wet condition, and realised poor prices.

STOCKTAKING: MARCH.—It is worth noting here that the authorities at the Board of Trade are endeavouring, month by month, to get at the seat of the production of all goods imported into this country from whatever quarter shipped. It has been the habit to class as German, or otherwise, all goods sent for shipment to German ports; this has been found to be very misleading, and the seat of origin is now in many cases found in the Board of Trade returns, which, for the month of March, are more satisfactory than those for the two preceding months. The imports for the month amount to £43,412,829, against £40,655,114, or an increase of £2,757,715. The bulk of this increase is found under the heading of "articles of food and drink, duty free," and the figures here are £2,347,085. As we had previously noted, there was a large amount of cereals "on sight" in the United States, and they have sent us the greater part of this increase—Wheat, flour, Indian-corn, bacon, and lard; Russia, the Argentine, India, and other countries, making up the difference. Australia sent an additional £149,000's

worth of mutton. There was also an increase in the imports of timber, amounting to £114,777. The only decrease of articles other than food and drinkables are to be found in—(1), metals, £6,105; (2), chemicals, &c., £260,653; (3), miscellaneous, £14,582. The following are our usual excerpts from the "Summary" Table:—

IMPORTS.	1897.	1898.	Difference.
Total value ...	£ 49,655,114	£ 43,412,829	+ 2,757,715
(A.) Articles of food and drink—duty free ...	12,547,692	14,894,777	+ 2,347,085
(B.) Articles of food and drink—dutiable	2,353,448	2,242,124	—111,324
Raw materials for textile manufactures ...	7,587,037	7,737,056	+150,019
Raw materials for sundry industries and manufactures	3,381,380	3,635,334	+ 253,954
(A.) Miscellaneous articles ...	1,412,210	1,397,628	—14,582
(B.) Parcel Post ..	74,866	141,117	+ 66,251

The next point of interest is the supply of fruits, roots, and vegetables, concerning which we give the following figures:—

IMPORTS.	1897.	1898.	Difference.
Fruits, raw:—			
Apples ... ..bush.	618,219	160,779	—457,440
Cherries ... ..	...	...	..
Plums	6	90	+ 84
Pears	1,796	3,153	+1,357
Grapes	3,205	1,649	—1,556
Unenumerated ...	58,065	68,701	+10,636
Onions	301,052	272,059	—28,993
Potatoes ... ..cwt.	45,203	635,872	+590,669
Vegetables, raw, unenumerated ...value	£168,432	£109,289	+£59,143

The countries whence Potatoes are derived are Germany (321,310 cwt.), France, Channel Islands, and "other countries." Respecting France, a recent return states that the consular district of Cherbourg sent us 24,173 tons last year; of fresh vegetables, 3209 tons; of fruit, 2129 tons. The imports for the three months reached the total of £119,099,209, against £117,633,863 in the same period of 1897—or an increase of £1,465,346.

EXPORTS.

In the matter of exports we have still to deal with the late strike of engineers, and at a later period the coal dispute in South Wales will have to be reckoned with. The exports for March amount to £20,833,865, as against £21,647,269 in March, 1897—a decrease of £813,404. The only items showing an increase are in "animals living," £9,208; and "raw materials," £12,582. The greatest decrease is found in "metals and articles manufactured therefrom, except machinery," £248,924; yarns and textile fabrics, £208,766; machinery and millwork, £134,198; articles of food and drink, £91,776; chemicals, &c., £74,561; apparel and articles of personal use, £69,672; by the way, there was a large increase in the supply of cotton goods to India, but the falling off in woollen and linen manufactures far out-balanced it; the demand from the United States has decreased considerably. There was a rise in coal, but the decrease in wool wiped that out of the reckoning. A large increase in the trade with China may, we are assured, be expected to follow the recent arrangements with the Court of Peking; already inquiries for ships have been made here by agents from Russia and Germany, to be freighted with British products, principally iron and steel manufactures. But we will soon see. Meanwhile, there is little doubt as to seeing the British flag on the far inland waters of the Celestial Empire. The export for the three months foot up at £57,707,118, as against £59,298,187, or a decrease of £1,591,069, or 2.7 per cent.

NATIONAL AURICULA AND PRIMULA SOCIETY (SOUTHERN SECTION).—The twenty-second annual

exhibition of the above Society will be held at the Drill Hall, James Street, Victoria Street, Westminster, on Tuesday, April 26. Notice of entry, and of the classes proposed to be shown in, must be given to Mr. T. E. HENWOOD, Auricula Villa, 16, Hamilton Road, Reading, at least four clear days before the day of the show.

LINNEAN SOCIETY.—On the occasion of the evening meeting on Thursday, April 21, at 8 P.M., the following papers will be read, viz.:—1. "On the Structure of Dendrocercos," by Prof. DOUGLAS CAMPBELL, F.M.L.S.; and 2. "On the Pterylosis of the Owls," by Mr. W. P. PYCRAFT.

PUBLICATIONS RECEIVED.—*Journal of the Board of Agriculture*, March, 1898, treating, among other subjects of: The Potato and Hay Crops of 1897; Imports of Agricultural Produce, 1897; Agricultural Trade of Australasia, and Injurious Insects.—*The Canadian Horticulturist*, March, 1898, includes papers on: Orchards and Gardens of Orillia; Pruning Grape Vines; Tomatos for English Market, &c.—*Dictionnaire Pratique d'Horticulture*: This work now reaches the letters T A I L, and the last livraison published includes a coloured plate of *Tacca cristata*.—*European Mail*.—*Nature Notes*, April.—*Palme Mattogrossense*, J. Barbosa Rodrigues, Rio de Janeiro.—*Müller's Deutsche Gärtner-Zeitung*, April 2.—*The Florist's Exchange*, March 26.—*Royal Society of Canada*, Vol. II.—*Generic Characters of the North American Tacaceæ and Conifera*, by P. D. Penhallow.—Vol. III. *Review of Canadian Botany*, by D. P. Penhallow.—*English Mechanic and World of Science*.

GERMANY.

SOME NOVELTIES.

AMONG the many novelties of the last few years, emanating either from Stuttgart, or which have been tried here, the following are deserving of notice:—

Anemone japonica Queen Charlotte (of Württemberg).—A grand hybrid of Mr. Pfitzer's, which flowered for the first time last autumn. It is a beautiful, extra large-flowering, semi-double variety, of a delicate silky flesh rose, and with a somewhat darker reverse. In colour it is very similar to *Anemone japonica elegans*, but has flowers almost twice its size, combined with a neat and compact habit.

Ageratum Princess Pauline.—A very pretty dwarf variety, about 5 inches high. The body of the flower is white, with a delicate outer border of sky-blue, making same peculiarly effective.

Cobaea scandens foliis marmoratis (Pf.).—A very pretty climber, with light green leaves, which are blotched and speckled and sometimes even bordered regularly with white. Grown in pots or planted out in a temperate-house it is very decorative.

Cactus Dahlia, Charlotte Deegen, raised by Mr. Max Deegen in Köstritz, has rather a tall habit, but flowers very freely, and continues to do so until late in the autumn. The flowers are of a delicate lemon colour, and well incurved. It has long and stout stems, and is a very desirable flower for cutting purposes.

Lobelia "Klothilde Pfitzer."—This variety deserves to be better known. It is the darkest we possess here. Flowers are indigo-blue, with a clear white eye.

Giant Fringed (or Frilled) Tuberous Begonias.—This is undoubtedly the best strain that has as yet appeared in single tuberous-rooted Begonias. They occur as yet in purple, scarlet, vermilion, and various fine shades of salmon and orange, and apart from the clearness and beauty of their large flowers, they are all more or less delicately fringed, adding greatly to their charm.

Pelargonium "Wilh. Langguth," belonging to the Mrs. Parker class, which it resembles. The flowers are dark rose, slightly flushed, having a robust and compact habit.

P. Meteor (Goeschke).—A fine single variety, both for pots and groups. The flowers are of an intense dark cinnabar red, forming very large umbels.

P. Alphonse Martin.—Also a very fine single variety, one of the best, is rose-coloured with a white eye, similar to the old favourite variety, "Queen Olga," which is still much planted here. It is very large-flowering.

Nicotiana collosca variegata.—If this variety has not fully realised what was expected of it, it can still be recommended for a number of purposes. As a pot-plant it is very effective, whilst in the open it succeeds best when planted in batches of three or five in a snug sheltered position, as can be seen at the Palmengarten, Frankfurt-on-the-Maine, during the summer months. We also use same as the centre-

ARTHROPODIUM CIRRHATUM.

For the past three years, I had among the collection of plants recently under my charge a number of nice specimens of this little-known New Zealand plant. Originally a small packet of seed was handed to me labelled "Lily, Mabel Island, S. Pacific. These were sown, and came up pretty freely, and some fifteen plants were grown on. When they flowered, the spikes were quite unknown to me, and to several others to whom they were shown.

I was afterwards successful in getting the name from Kew (that happy storehouse, that has been a friend to so many like myself). Since then I have

were mostly secured by Messrs. R. Veitch & Sons, of Exeter, who doubtless will assist in their being further spread abroad.

When the seed germinated, I grew the plants at first in an intermediate house, where the leaves grew rather lengthily. I then, for the summer, stood them in a cold frame, and the lessening of the temperature with greater humidity had a most marked effect. The foliage became stouter, deeper in colour, and a vigour was developed of which first appearances gave no indication.

Towards October or November, the plants were brought into the warm greenhouse and continued growing, so that during February and March the



FIG. 86.—ARTHROPODIUM CIRRHATUM: FLOWERS WHITE, $\frac{3}{4}$ TO 1 INCH ACROSS, WITH A PERIANTH OF SIX PERSISTENT SEGMENTS.

piece in groups. The lower part of the plant is thus hidden, and as it is very liable to lose its lower leaves, this is an advantage.

Pennisetum Rüppelianum.—An introduction of Messrs. Dammann, Naples, which is really good. It has been very aptly compared with a dwarf *Gynurium*. It grows about 1 foot high, and with its exceptionally fine and gracefully-drooping leaves and dark brown flower-spikes, is very suitable as a border to groups of foliage plants, such as *Canna*, &c. We had a large group of *Cannas* last year, centre R. P. Ker, dark red, enclosed with *Fürst Hohenlohe*, yellow, the whole finished off with *Pennisetum Rupp*, which was very fine. H. R. W., Stuttgart, March, 1898.

found it in *Nicholson's Dictionary*, and now I have before me vol. i. of the *Gardeners' Chronicle* for 1874, and on page 661 is a plate representing a well-grown flowering plant, with on another page numerous other wood-cuts of flowers, pollen, stamens, &c., all remarkably true to the specimens I have flowered.

Regarding that figure [which is here reproduced. Ed.], I should like to say that a plant with me of such a size and vigour would have had six to eight spikes, and when these come up well above the foliage, their purity and attractiveness always made them objects of interest. I much regret having to be severed from these and many other interesting subjects, but it is a pleasure to know they

spikes appeared, many laterals being produced on the spikes. I certainly recommend it to be grown in gardens where a conservatory must be kept continually gay, since its bright flowers coming freely above the foliage, give a novel, attractive, and pleasing interest to the collection.

It is a plant of free growth, and makes very fleshy roots; if grown so that pots of 6 or 8 inches are used, these will be plenty large enough; then after flowering, the plants may be divided, and the stock easily increased. If care is exercised, the flowers will produce a quantity of black-looking seed; this should be carefully sown and tended, as it will quickly germinate, and nice plants soon be formed.

Though much like one or two of the greenhouse Anthericums, it must not be confounded with them, as it is in every respect a much better thing. *W. Swan, Bystock.*

HOME CORRESPONDENCE.

THUNBERGIA LAURIFOLIA.—What a very handsome stove climbing plant we have in the above-named variety of *Thunbergia*! For flowering at this time of year I know of no other to equal it. In the stove here there is a good sized specimen, which has been in flower for some time past, and is yet almost smothered over with its long racemes of beautiful pale blue flowers. It is of very easy culture. Our plant is growing in a square wooden box, fixed some little distance above the four hot-water pipes that run round the house underneath the side stages. The growths are trained up the roof on a wire trellis fixed about 8 inches from the glass. The house in question is a span-roofed one. The plant is growing in a compost consisting originally of equal parts of turfy loam and good peat, with an admixture of clean river sand and small bits of charcoal. The whole is now a mass of roots, requiring a plentiful supply of water at all times, but especially during the summer months, when the plant is making its annual growths. About the end of April we thin out the worn-out shoots, leaving a thin covering of the younger ones to form a base for the supply of flowering growths another season. A top-dressing of fresh compost, with an occasional sprinkling of some good artificial manure during the summer, is all the attention required. Unfortunately, the flowers are not useful in a cut state, which to some may be a drawback. I am forwarding a few racemes of flowers for your inspection. When looking through the houses at Messrs. Backhouse's York Nurseries, recently, my attention was drawn to a very large specimen full of flowers in the stove. The foreman told me it had been in the same condition for some weeks past. *H. J. C. Grimston, Tudestee.*

HARDY PLANTS FOR FURNISHING FLOWERS FOR CUTTING.—I cannot allow to pass unchallenged the recommendations of Mr. Ward under this head at p. 205, concerning bulbous Iris (i.e., English and Spanish), and double Daffodils, more particularly as regards the planting of dry bulbs of these things in spring. Mr. Ward says, "There is no practical reason" why good dry bulbs of these Irises and double Daffodils shall not be planted in February or March. To this I can only say there is every reason possible, for if such bulbs were planted 3 inches deep in either of these months, after having passed the usual ordeal of the bulb drop, the chances are that 90 per cent. would never raise themselves that year more than the same number of inches above the soil, and by reason of the almost if not entire absence of roots, no foliage worthy the name would result, and with such where does Mr. Ward get his new bulb and flower germ for flowering another year? And yet this is the advice tendered by Mr. Ward, that, "By doing so they gain time and strength, and give better floriferous results." I am quite prepared to waive the months of February and March in this matter, and then to state that even January-planted bulbs—which of necessity would be more sound than the same things kept two months longer—invariably reach only half their usual size, and when taken up are found to be crippled in a far greater degree than any hard-forced bulbs. How much worse, then, such as are recommended for March, or even later? Mr. Ward urges that I must know that thousands are advertised and sold in the months named. True; but who are the buyers? Certainly not practical gardeners or bulb specialists. Only in February of this year I was an eye-witness to the sale of part of a big lot of double Von Sion Daffodils, put up in lots of 500 each. The first started at 2s., and eventually the lot, all good-sized bulbs in a dry state, reached 3s. 6d. This for bulbs of forcing size of double Von Sion. There were other lots of equal size, for which no bid could be drawn out of a large company, that included at least half-a-dozen Daffodil-growers and specialists. Here was a lost opportunity, for Mr. Ward could have had at least 2000 or 3000 for the taking away; bulbs, moreover, that, as far as size was concerned, were equal to many selected for forcing, and costing in their rightful season from 35s. to 40s. per 1000, exclusive of carriage, package, &c. Spanish and English Irises are even worse to keep sound, as no group

of hardy bulbs or tubers is more susceptible to dry-rot than these when kept long in a dry state; the only other group that I can compare with these is the Erythroniums, and these suffer from the same cause, and probably to a greater extent in a short time than do the Iris. Respecting the Francoa, to which Mr. Ward refers again, I must state that he originally recommended it for field-culture, and quite unconditionally, and to say that it will "grow and flower freely when sheltered from north and east winds," is trying to evade the point at issue. Given field culture in the open, this plant cannot with impunity endure 12° of frost, yet this is the subject Mr. Ward recommends the flower-farmer to grow for profit. Over and over again in the very light soil of this district, which is also well drained, and likewise at Tooting, in an ideal soil for the comparatively hardy subjects, all the stock left out in the plunging beds, notwithstanding the plants were deeply rooted into the soil below, were killed outright, always in cases of ordinary severe frost; not only *F. ramosa*, but *F. sonchifolia*, and *F. appendiculata*, the last the deepest coloured form of all. This is not the plant the flower-farmer requires at all, or if he does require it, he should at least know that he is dealing with a somewhat tender subject. *Thalictrum adiantiforme* is also mentioned by Mr. Ward for the same purpose. A pretty rockery plant certainly, but unfitted as a plant to grow for cutting for profit. In the first place the pinnate-like foliage has been much overrated, the young growths won't stand at all when cut, and the more mature fronds, so to speak, are not ready till August, when such a subject would be valueless in our markets. Furthermore, the yield of an ordinary plant is not more than half a dozen fronds each year till tufts are formed, and it is not a very productive plant. A useful enough subject in a private garden, where if given moist sandy soil, or with peat added, growth is more free. Under field culture, however, unless its requirements were nicely adjusted it would take several years to establish—in short, it is not at all suited for the purpose in a general sense. A list of some "good perennials" requested by Mr. Ward is already in the hands of the editor of the *Gardeners' Chronicle*, and may see the light and I hope also "do a service" in the near future. *E. Jenkins, Hampton Hill.*

COLOUR IN DAFFODILS.—I read with interest your remarks in No. 586, March 19, p. 172, "On the colour of Daffodils in relation to Soil." I have tried a good many experiments with the *Hydrangea*, as I wished to secure a permanently blue strain, but without success hitherto. Some years ago I noted in the Pass of Aberglaslin some very fine blue *Hydrangeas*, of which I obtained cuttings, and tried various experiments, using steel filings, alum, and sulphate of iron, but without success, for all reverted to the pink, or, as it is sometimes called, purple colour. Another time I obtained cuttings of the blue variety of *Hydrangea* from Penmaenmawr, and secured about a hundredweight of the actual soil they were growing in to strike and grow them in, with but slightly better results, for ultimately all of them reverted to the pink colour. In travelling, I have noticed, in parts of Cornwall, where broken shells—shell-gravel from a part of the coast where shells abound, was used as manure on part of a field, that the colour of the grass was of a much deeper green than in adjacent parts, and as if the inhabitants of the district knew what effect this shell-lime or chalk would have. One man had written his name in large characters, and it came out bold and clear in dark green against the paler grass. What had taken place, I think, was the lime had liberated the ammonia which was in the ground from the sheep and cattle droppings, and thus given rise to a strong manurial effect. Again, I have constantly used weak sulphate of ammonia to give richness and intensity of colour to my Primulas, and with uniform success. Now, what I want to come to is this. Blue *Hydrangeas* are very frequently found on moorland, where peat abounds; peat very frequently contains iron. Last year, whilst in Ireland, on Slieve Donard, the highest point of the Mourne Mountains, near Bloody Bridge, at the back of Newcastle, Co. Down, my son gathered a blue Heath in the peat. Again, if very rich purple *Aubrietias* are transplanted to a lightish sandy soil, the colour becomes poor and washy; and just the same takes place with blue *Hepaticas*. Why was not the soil looked at as a mechanical medium for the plant to grow in, or was it the lightness of the soil allowed the chemical salts to be washed out, and so the plants were deprived of that which was essential to

maintain the rich blue colours. How was the so-called blue (purple) Chinese *Primula* obtained a few years ago? How, more recently was the blue *Primrose* obtained? Any information as to how the colours of flowers may be changed by soil or chemical salts would oblige. *Hy. Ashwell.*

SPARROWS AND CROCUSES.—As "Wild Rose" (p. 204) says, "the ways of that little depredator, the sparrow, are unaccountable." I must plead guilty to harbouring the sparrow, and not only feed it, but allow it to build among the Roses on the house. Whether or not gratitude is one of the virtues of the much-maligned bird, it never returns evil for good by destroying the flowers here. Crocuses of all colours bloom freely and are left untouched by the birds, while in a garden only a mile away, not only yellow Crocuses, but Primroses, Polyanthuses, and Hepaticas are destroyed. A well-informed naturalist with whom I discussed the question two or three years ago, said that he believed that some families of sparrows were free from this habit of destroying the flowers. One would fain hope that the birds here may not fall into the depraved habits of other places, but will allow us to enjoy our flowers without the disfigurement of black threads—the only preventative of which I have ever heard. Perhaps some one who has lost flowers from the attacks of the sparrows would try giving them food and water for a year or two, and report after that time. [Vain. Ed.] Slugs are very destructive here, but except in the case of some specially-prized plants, leave the *Chionodoxas* alone. They are very destructive to the *Puschkinias*, and *Bulboodium vernum* is scarcely allowed a perfect flower, so severely do they crop it, although almost daily search is made for marauders near where it grows. *S. Arnott, Carsethorn, by Dumfries, N. B.*

ROYAL GEORGE APPLE.—I could not resist the appeal made to me by Mr. Geo. Bolas on p. 172 (*Gardeners' Chronicle*, March 19), to verify my first statement by some account as to the origin and approximate date of same of Royal George Apple, and its entry into commercial life. The last item I am unable, even now, to give any information upon. I did the best I could in the matter by sending the whole of the correspondences to Mr. George Beaumont, of East Bridgeford. Mr. Beaumont is a land agent of wide and varied experience, has lived all his life in East Bridgeford, and is deeply interested in the local history of the village, its people, and all its concerns. He is also a member of the Notts County Council, and well read in the county's history. He very kindly supplied me with the following note:—

"ROYAL GEORGE APPLE, OR CLARKE'S PIPPIN (NOT SEEDLING).—Whatever Apples may have existed before under this name, the original tree, now called Royal George, was grown by Mr. George Clarke, or Clark (the name is spelt both ways), a master bricklayer, who lived and died at East Bridgeford, from which very many trees have been grafted, and the sort is now extensively grown even by Messrs. Pearson and Merryweather, and can be traced to that origin. I have one tree which must be over fifty years of age. My late gardener, George Upton, had four trees; his son, now in my garden, another. Clark's son, now living, has the original tree, or at least it still grows in his late father's garden. You have, as you say, awarded prizes for this fruit, which is very handsome. Mr. Hassall, of Shelford Manor, has many trees, and my man, John Upton, says that there are 'hundreds' grown in these parts. Thomas Clarke (whom I also know well and employed), is, like myself, now past seventy years of age, and remembers the tree from his youth. There is no doubt, whatever that you are correct, and if you want proofs, they can be found abundantly here."

"GEORGE BEAUMONT, F.B.I.,
East Bridgeford, Nottingham, March 29, 1898."

"Mr. Pownall."

I think I need only add that I am delighted to have so emphatic and clear a confirmation of my contention as to the origin of the Royal George Apple. *N. H. Pownall, Lenton Hall Gardens, Nottingham.*

APPLE, GASCOIGNE'S SEEDLING.—My opinion of this showy Apple agrees with Mr. Markham's, but I ought to mention, however, that my experience is confined to young trees, planted in the autumn of 1893. This variety, Bramley's Seedling, and Annie Elizabeth, have so far proved to be the most shy croppers, amongst some fifty others, planted in pyramidal and bush form on the above date. It forms a handsome bush, and grows very freely; in fact, it and Bramley's are the most vigorous growers that we possess—an attribute which amounts to a defect—and, notwithstanding root-pruning, trees refuse to bear well. As the trees advance in age and exhaust the maiden soil in which they were planted, they may become better croppers. Gascoigne's is prone to form fruit-buds upon the points of the shoots, and for this reason it is not so well adapted as many others as an espalier-tree. *Thomas Coomber.*

ALSTRÖMERIAS.—The discussion regarding these beautiful flowers must have been of interest to many besides those who grow flowers for market purposes. Of those in cultivation, I believe *A. aurantiaca*, with its variety *aurea*, *A. chilensis*, and *A. psittacina*. to be the hardiest. In some gardens, even mild localities, all of these may be lost however in a way difficult to understand, while in others in the same neighbourhood they increase in size from year to year. What is particularly puzzling is the way in which large plants established for some years disappear in one winter. I have known clumps of *A. psittacina* vanish thus in even milder winters than that of 1895-96. I fancy from what we know of the plant, that neither *A. pelegrina* nor *A. p. alba* are likely to be suitable for outdoor cultivation, except in warm and sheltered positions in exceptionally favoured localities. Among others I have tried but lost, are *A. Errebauti* and *A. versicolor*. Growing well at Newry, and in front of the houses at Glasnevin, I saw both *A. Diazii* and *A. revoluta* two years ago. There was a plant of the latter in this locality last year, but I have not heard if it still survives. I believe much depends upon the soil in which *Alströmerias* are grown, and the attention they receive by watering in summer, and the addition of a covering of litter in winter. *S. Arnott, Cursethorpe, by Dunfermline, N.B.*

STOCK PRINCESS ALICE.—I am sending some flower-spikes of Stock Princess Alice, cut from plants raised from seed sown last September, pricked out into 60's, and when large enough potted into 48's in January. I have a good number of them which began to make a pretty display in the conservatory in March, and they will continue to flower throughout the present month. When out of bloom I shall cut them back, and when well broken plant them out in a rich border to flower in July and August. I proceeded in the same manner with my Stocks last year, and the autumn being mild, they flowered for the third time before the frost spoiled them. I may say the flowering in pots was not so good as this year. The Stocks from which I send you flowers had the points of their shoots nipped off about ten days after they were potted in 48's. *H. Brewey, Oaklands, near St. Albans.* [Nice flower-spikes of this fine white variety of Stock. *Ed.*]

IBERIS STYLOSIA.—This is Tenore's name for a rather obscure dwarf Neapolitan plant, which Nyman in his *Conspectus Fl. Eur.* classes—apparently on his own authority—under *Thlaspi*, but the *Index Kewensis* and *Kew Hand-list* refer it to *Nocca*. It appears this spring offered as a rare novelty in several nursery catalogues, and as those I have obtained from several nurseries for the purpose of making its acquaintance do not all agree, I send this note about what I conclude to be the true type. It is an insignificant but neat little plant, not at all like an *Iberis* in general appearance, an inch or two high, with small flowers of a pale purple tint, produced very early in spring, and about the size and shape of those of *Hutchinsia* (*Nocca*) *alpina*, which the plant somewhat resembles, except that *H. alpina* has white flowers. I am doubtful whether the plants will survive one flowering. In merit it will hardly supersede the better known annual *Ionopsidium acaule*, which is nearly related to it, and which flowers in the crevices of rockeries abundantly all the autumn, winter and spring, and if we wish it, all the year round, being very neat and never obstructive. The colour and size of both flowers is similar. *C. Wolley Dod, Edge Hall, Malpas.*

NARCISSUS ATTACKED BY MITE.—I send some bulbs of *Narcissus* infested with what I term bulb mite, *Rhizoglyphus echinopus*. Imported bulbs of *N. nans* are injured in the same manner. The bulbs are infested outside by the mite and other insects; one a semi-transparent worm-like thing, another white semi-transparent insect with legs; both these I have always found associated with mite. [All, perhaps, prey on decayed vegetable matter. *Ed.*] My attention was drawn to the plants by their miserable appearance, for they used to make a grand show out of doors, and were bulbs that had been forced and then turned out in some numbers each year for the last eight years. From the appearance of the dead tipped foliage and absence of bloom, the bulbs seem doomed to extirpation by the mite if left alone—such being my experience here. About this time last year an exhaustive article appeared in the *Gardeners' Chronicle*, the writer arguing against the destruction of *Narcissus* bulbs by the mite, or at least, if my memory does not betray me, the writer

stated that no proof was forthcoming to prove that mite was the cause of the decay so common in *Narcissus* (either I do not know the mite when I see it, or the writer is mistaken), as there is mite here in the soil which we obtain from the park, and it is also imported in the bulbs themselves, and nearly every plant with a fleshy root is sooner or later infested, with the result that many species of plants we cannot grow at all; so that it has become a plague in this garden. But my object in sending these bulbs is to prove that the writer of the article in the *Gardeners' Chronicle* last year was mistaken. I will give some certain remedies against mite on bulbs in a future note, and the names of the other plants attacked, as we, I should imagine, stand at the top of the tree here for vermin and garden pests; indeed, we do more to fight them than to grow plants. *Gro. Abbey, innr., Avery Hill, Eltham, Kent.* [Mite was found in the bulbs, and small earthworms and milipedes, the last two not destroyers of plants; and the bulbs were badly decayed at the base, and for some distance upwards; indeed, no healthy roots whatever were found on the bulbs. No mite was discovered in sound parts of the bulbs. There must be something inimical to these plants in the soil. *Ed.*]

IMPORTED ONIONS.—The common sale in this country of Brittany Onions, to which Mr. Herrin draws attention on p. 213, is due to several causes. First, France exhibits in a degree far beyond any English experience the productive value of the small-holding system. It is in the hands of the industrious and, as this case shows, energetic peasantry of France a wonderful power in production, excelling all our ordinary farming methods a long way in that respect. In France, wages are low, but, then, living is with them simple and inexpensive. Myriads of our workers spend as much on beer and tobacco as would keep a French peasant. Then we see in the action of these peasants in combining together for the purpose of chartering vessels and sending their Onion produce over here, to be disposed of by themselves or their agents, that co-operative effort which is in this country so much lacking. The Onion is essentially a garden crop. To obtain profitable results, deep culture and high manuring is absolutely needful. That is in the small-holding system, conducted by manual labour, well done. We see evidence of what can be accomplished in that way in splendid Onion crops in private gardens and on allotments. We see no such great results on ordinary farm land. There is no crop produced of a strictly bulbous nature that is, on the whole, heavier than is a good one of Onions. I have seen at the rate of 5 bushels per rod produced under good culture, and of course a fine sample. That is a rate of production that should pay well, especially that ground well prepared for Onions is in splendid condition to carry some other crop the succeeding year, especially one of strong, well-rooted Strawberry plants, put out thickly to carry one crop, then to be trenched in, and got ready for Onions again. It is worthy of note that Mr. Bowerman, at Hackwood, grows his grand planted-out bulbs every year on the same ground, and finds it is improved annually. *A. D.*

LAW NOTE.

AGRICULTURAL RATES ACT.—SMITH AND OTHERS v. RICHMOND.

THE Court of Appeal reversing the judgments of the Courts below, has held that "glasshouses" are not to have the benefit of the relief given by the Agricultural Rates Act, 1896, to "Market Gardens and Nursery Grounds."

Having regard to the importance of the question to growers, my Association has determined to carry it to the House of Lords, if we can secure the support of the trade generally. We have many calls on our funds, and it is felt that the serious expense involved in proceedings of such wide-spread interest should not be wholly thrown on the subscriptions of our members. Growers throughout the country are invited to inform our Treasurer, Mr. George Munro, by letter addressed on or before the 20th inst. to the offices of the Association, as below, what financial support they are, under the circumstances, prepared to afford the Association.

I am, yours faithfully,

WILLIAM POUPART,

President of the Market Gardens, Nurserymen, and Farmers' Association.

32, King Street, Covent Garden, London, W.C.,
April 14, 1898.

BELGIUM.

NURSERY NOTES.

L'ETABLISSEMENT HORTICOLE (LINDEN'S).

A VISIT to this well-appointed nursery in Brussels, is at all times of interest to the horticulturist, but it becomes all the more so prior to the "Ghent Quinquennial." One cannot but admire the excellent arrangement of the glass structures, nearly all of which have span roofs, and in every case they open into a lofty, long, and wide corridor, down the centre of which are disposed many splendid specimens of the best of our well known species of Palms, and not a few of rarer species. Several of these Palms are noble examples, and comprise *Kentias*, *Latania borbonica*, and *Cocos Bonnetii*. These Palms are set off by small specimen Aroids, *Anthuriums*, &c., a complete finish being given by means of a close carpet of creeping-plants and others of lowly growth well adapted for the purpose.

At one end of this erection is a winter-garden, which forms the chief entrance to the glasshouses. This, too, has amongst its occupants numerous fine specimen foliage plants. Palms, of course, predominate here also, but there are some huge specimen Ferns, and there is at the other extremity of the first-named corridor a big plant of *Cibotium Barometz*. On a stage in the winter-garden many new, rare, and interesting plants are arranged, which are set off by a carpeting of green moss.

Orchids predominate in the span-roofed houses issuing right and left from the corridor. In one of the largest of these I found a remarkably fine lot of *Vanda suavis* and *V. tricolor*, many of them flowering profusely. These *Vandas* are abundantly furnished with healthy leaves quite down to the rims of the pots. Plants of *V. Bitemanni* were also noted here some 6 or 7 feet in height, and these, too, with foliage down to the base. *V. Kimballiana*, one of the smaller growing species, was also noticed in a thriving condition. In this and in another house an importation of plants of *Ocoidium Lanceanum*, well established and rooting freely, was observed. Several houses held a large number of plants of *Cattleya Triandri*, *C. Mendeli* and *C. gigas*. Of the old *Cattleya labiata* with the typical broad leaf, a large stock of plants was noted in one of the houses. *Cattleya bicolor* as flowering plants in quantity, was also included. Of *Laelias* the chief stock consisted of *L. purpurata*, of which in one of the houses an unusually fine stock furnished with many sheaths was noted; *L. præstans* and *L. autumnalis* were also present in considerable numbers. Another Orchid, not seen often enough in gardens, was also making a capital display, viz., *Celoglyne ocellata*. Other well-known Orchids which here are thriving very satisfactorily are *Oncidium crispum* and *O. Marshallianum*; and *Cypripediums* are to be seen in quantity. The most notable of this family of Orchids are *C. bellatulum* and *C. villosum*, both of which have been recently imported with *C. Parishii* together. Of hybrid *Cypripediums* there are many healthy plants, and of these *C. Schroderi* and *C. grande* claimed especial notice; *C. Lawrenceanum* was also strongly in evidence.

Just at the present time, however, the finest display is being made with *Odontoglossum luteo-purpureum*, of which healthier plants or finer varieties could scarcely be found elsewhere. Many of the finest spikes carried twenty or more flowers of large size, which glistened with the brightness of perfect condition. These last-named plants were scattered through several of the houses, and formed a truly notable feature, being represented by hundreds of spikes. *O. cirrhosum* was beginning to expand its flowers, which showed many good forms. *Odontoglossum* (*Miltonia*) *vexillarium*, although but a few were in flower, gave excellent promise, and the plants are sending up flower-spikes in great profusion, with that rude luxuriance of growth one desires to see in this Orchid. *Masdevallias* are to be found here in large numbers, the best species, as *M. Harryana*, being the most conspicuous, but of *M. Chimera*

there were also some good specimens. The *Mormodes*, *Catasetums*, and *Anguloas* evidently find favour in Belgium, if one may judge by the large numbers grown in this nursery. Throughout the establishment cleanliness, and good taste in arrangement prevail. *Visitor*.

SOCIETIES.

ROYAL HORTICULTURAL.

APRIL 12.—Although the meeting on Tuesday last at the Drill Hall took place immediately after the holidays, there was no evidence of this fact in the hall itself, for the exhibits were numerous and the attendance large. There were many fine Orchids exhibited, including the spike of *Eulophiella Peetersiana* from Sir Trevor Lawrence's garden, and recently figured in these pages. Spring flowers were again numerous, and there was a good display of Daffodils, which made many batches of bright colour. Hybrid *Cinerarias* from Messrs. SUTTON & SONS and Messrs. JAS. VEITCH & SONS caused considerable attraction, being admired by many, but not unanimously. There was but a small quantity of fruit staged, though there were fine Strawberries and excellent Figs.

Floral Committee.

Present: W. Marshall, Esq. (chairman), and Messrs. Jno. Fraser, Owen Thomas, C. T. Drury, R. Denn, J. H. Pitt, Geo. Stevens, Wm. House, J. F. McLeod, Thos. Peck, C. J. Saltor, J. W. Barr, J. D. Pawle, H. J. Jones, Chas. Jeffries, Chas. E. Shea, Chas. E. Pearson, D. B. Crane, E. Beckett, F. J. Cuthash, Geo. Paul, J. Fraser, E. T. Cook, Harry Turner, and Ed. Mawley.

Messrs. JNO. LAING & SONS, Forest Hill Nurseries, made a pretty display, with plants of their "multiflora" strain of *Streptocarpus*. They are free-flowered, embrace varied and pretty tints, and continue to flower for a very long period. The group was set on a groundwork of Ferns.

Mr. W. RUMSEY, Joyning's Nursery, Waltham Cross, made a bright show with a large number of cut Roses in much variety. H. P. Mrs. Rumsey was shown very finely, and with long stems attached, which seemed to show a vigorous habit in the variety (Silver Flora Medal).

Mr. J. WALKER, of Thame Nurseries, Oxon, showed about two dozen highly-coloured blooms of *Rose Maréchal Niel*, equally remarkable for their size as for colour (Silver Banksian Medal).

Another group of cut Roses came from Eastwall Park, Kent, Lord GERHARD's residence (gr. Mr. H. Walters). Two dozen specimens of *Maréchal Niel* in this collection were remarkably good in size and colour.

A large group of *Cinerarias*, interspersed with Ferns, from Messrs. J. CARTER & Co., High Holborn, London, showed a strain of large-flowered, brilliantly coloured varieties, of a branching and moderately tall-growing habit (Bronze Flora Medal).

A group of *Cineraria* plants from Messrs. SUTTON & SONS, Reading, represented a strain obtained by crossing *C. cruenta* and *O. multiflora*. They are known as the "Stellata" group, and represent among *Cinerarias* what the "Star" strain is in *Primulas*. The plants were three feet or more high, slender habited, and possessed scanty foliage. The great characteristic, however, is extreme floriferousness; each plant produces branches of bloom well adapted for cutting purposes. The colours are varied, but not so bright as could be wished, and there was no white-flowered variety. Most of the plants were in 6-inch or 7-inch pots.

Messrs. W. CUTBUSH & SON, Highgate Nurseries, London, showed a group of forced flowering-plants, including *Cytisus laburnum*, *Staphylea colchica*, and *Deutzia Lemolind* ×.

Messrs. W. BARDNEY, gr. to Sir PETER WALKER, Osmaston Manor, Derby, sent some blooms of seedling varieties of *Clivias*, several of which possessed much merit. Those named William Bardney and May Bardney were the best.

Messrs. HUGH LOW & CO., Bush Hill Park Nursery, Enfield, showed two plants of *Dracena aurea striata*, a broad-leaved *Dracena*, with a green ground, variegated with yellow (Award of Merit).

From Lord ALDENHAM, Elstree, Herts (gr. Mr. E. Beckett), came a small group of plants of *Deutzia gracilis variegata*, which to our mind is not so effective as the green-leaved type.

A pink flowered *Galla* was shown by Mr. G. TRINDER, Dogmersfield Gardens, Winchester. The spathes were exceedingly small.

Messrs. R. WALLACE & CO., Kilmfield Gardens, Colchester, exhibited a few choice hardy plants in flower, including *Erythroniums*, *E. Hartwegi*, *E. giganteum*, *E. revolutum*, and *E. r. var. Bolanderi*, a pure white flower, save the yellow stamens, and a circle of the same colour in the eye. *Fritillaria pluriflora*, *F. lanceolatus gracilis*, *F. Whittalli*, and others; also the dazzling *Tulipa Grolgii* and *Trillium erectum*, with deep crimson flowers, and a white variety of the same (Bronze Flora Medal).

On the floor immediately upon entering the hall, Mr. J. B. MAY, Dyson's Road Nursery, Upper Edmonton, arranged a group of Turner's Crimson Rambler Roses in pots, interspersed with variegated *Acer*, *Hydrangeas*, *Spirea* astil-

boides floribunda, and Ferns; also several hard-wooded Clematises, Duchess of Edinburgh, white, double, and Miss Bateman, single white, and *Begonias* (Silver-gilt Banksian Medal).

Messrs. W. PAUL & SON, Waltham Cross, Herts, exhibited *Camellia* blooms in extensive variety, and inclusive of a few novelties. Awards of Merit were recommended to Pride of Waltham, a flesh-pink coloured flower of considerable size, with veining of a deeper colour; Mrs. J. Buchanan, a semi-double-flowered variety, white, irregularly marked with red; and Duchess of Teck, a good large flower of pale rose colour. Other new ones were Duchess of York, Camillo, Arelliana, &c. The group was recommended a Silver Flora Medal.

A collection of *Camellia* blooms from trees out-of-doors came from F. T. BURY, Esq., St. Leonard's Hill, Windsor, (gr. Mr. R. Brown). This collection of six dozen blooms was accorded a Vote of Thanks.

Mr. CHAS. TURNER, Royal Nurseries, Slough, exhibited three plants in baskets of *Nepeta glechoma variegata*, a very pretty hardy trailing plant (Cultural Commendation).

Mr. J. MILLER, gr. to Lord FOLEY, Ruxley Lodge, Esher, showed a lot of fine Violets *Maria Louisa*, from plants that have been flowered for three years successively in frames. A few *Narcissus* blooms came from the same garden.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, again exhibited about half a dozen of their seedling *Hydrangeas* in flower, and an award of merit was recommended to one of these, viz., to *Daones*, having white and scarlet flowers, the segments in each case having a narrow white margin, a very pretty flower. They also showed a number of hardy plants in variety, including the neat-habited *Rhamnus alaternus fol. argenteis*, with effective white variegation; *Azalea carinata* splendens, possessing small flowers of a rosy-crimson colour; *Deutzia hybrida* Lemolind, figured in *Gardeners' Chronicle*, vol. xviii., 1895, p. 389; *Rhododendron racemosum*, with pink flowers, closely set in the leaf-axils of the annual shoots—a good plant for beds in the open; *Rhododendron indica* var. *Kämpferi*, having red flowers; *Azalea obtusa* var. *alba*, small white flowers. This exhibit contained plants of *Cinerarias* raised from *C. cruenta* crossed with florists' varieties, that showed much variety of colouring, and mostly of gawky habit, with long-branched corymbs, and flowers resembling a now obsolete type in some cases, and of a stellate form in others. The plants are showy as at present seen, and appear well adapted for furnishing flowers for cutting, these lasting in good condition for a long period of time.

Mr. W. KEMP, The Gnyah, Barnes, sent a pretty collection of double and single flowered *Azalea indica* in small plants, each loaded with flowers, and mostly of very pleasing colours and form. The prettiest were *Othello*, *Victor Cuvellier*, *Dr. Moore*, *Louis Lubbers*, *Memorie de L. Van Houtte*, *Comte de Torre*, *Duchess Fernand Neumer*, *Madame Gréve*, *Theodore Reimers*, *Princess Victoria*, *Baronne de Vriore*, *Madame Louise de Kerchove*, fifty-four plants in all, the group bordered in the front with *Lily of the Valley* in pots (a Bronze Banksian Medal).

Messrs. J. HILL & SON, Nurseries, Lower Edmonton, showed a choice collection of exotic Ferns in fine condition as way-going market plants. We remarked the following among the rarer species and varieties: *Dietogramma japonica variegata*, *Todea africana*, *Lautrea aristata variegata*, *Cheilanthes Ellisiiana*, *Osmunda palustris*, *Microlepia platyphylla*, with blue-green, boldly cut fronds; *Athyrium Gorin-gianum* plenum, *Pteris straminea*, and *P. arguta*.

P. PURKILL, Esq., Woodlands, Streatham Hill, S.W., showed a group of *Primulas*, including some few *P. auricula* in florists' varieties; *P. Allioni*, *P. viscosa*, *P. verticillata*, *P. intermedia*, *P. denticulata*, *P. ponderosa*, and seedlings of "blue" varieties, resembling Mr. G. Wilson's strain of these flowers.

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, showed a large group of fine, fresh-looking Roses in pots, in bush and standard form. There were nice plants of *Madame Hoste*, *Souvenir de S. A. Prince*, *Madame de St. Joseph*, beautiful in the half-open state of the flowers as shown; *La France*, Mrs. G. S. Crawford, *Antoine Rivoire*, a one-flowered plant of the palest of flesh tints, deepest in tint in the unfolded petals; *Marquise Litta*, good in colour, a shade of crimson, but loose in form; *Clara Watson*, an immense bloom of this fine H. T.; *Rubens*, *Clothilde Soupert*, *Ernest Metz*, &c. An award of a Silver Flora Medal was made.

Orchid Committee.

Present: Sydney Comtauld, Esq., in the Chair; and Messrs. J. O'Brien (Hon. Sec.), De B. Crawshaw, R. Brooman-White, H. M. Pollitt, H. J. Chapma, F. J. Thorne, W. H. White, W. H. Young, W. Cobb, T. W. Bond, H. Ballantine, and Major Mason.

Sir TREVOR LAWRENCE, Bart., Burford Dorking (gr. Mr. W. H. White), staged a select group, in which were several very remarkable species. In the centre of the group stood the grand inflorescence of the new *Eulophiella Peetersiana*, which produced its large clear rose, waxlike flowers for the first time under cultivation in the Burford collection, of which a flower-spike was shown of natural size in the *Gardeners' Chronicle* Supplement of April 2, 1898. The exhibit was unanimously awarded a First-class Certificate. Another grand exhibit in this collection was *Cypripedium* × *Olenus*, Burford variety, the largest and handsomest of the *C. bellatulum* hybrida ever shown. It was obtained from fine varieties of *C. bellatulum* and *C. ciliolare*, and the massive flower was almost entirely of a rich clear crimson

colour, a little of the white ground colour showing only at the edges of the sepals and petals (First-class Certificate). There was also shown for the first time *Masdevallia veitchiana longicauda*, one of a new section, with the base of the perianth formed into a long, pouch-like tube, the sepaline segments being small and furnished with tails about two inches in length, and the whole of a crimson colour (Botanical Certificate). Other remarkable plants in the group were *Cymbidium Devonianum*, with six long racemes of flowers (Cultural Commendation); the beautiful *Dendrobium* × *micans*, *D. lituiflorum album*, the richly-coloured *Odontoglossum Pescatorei* Prince of Orange, *O. nebulosum candidum*, a fine specimen of the brilliant *Epiphrontis* × *Veitchii*, with many spikes; *Dendrobium crepidatum superbum*, the charming *Polystachya Ottoniana*, forming a cushion of white flowers; the fringed *Dendrobium Harveyanum* *Epidendrum* × *Endresio-Wallisii*, *Masdevallia leontoglossa*, &c. The group was "not for competition."

Baron Sir H. SCHRODER, The Dell, Staines (gr. Mr. H. Ballantine), showed a few magnificent *Odontoglossums*, among which the fine, heavily-spotted *O. crispum Schroderianum* showed itself as still being one of the best; the unique *O. x excelens Dellenae*, of a very fine yellow hue, blotched with red-brown; and the old and still distinct *O. crispum Horsmani*, with flowers prettily spotted.

Messrs. JAS. VEITCH & SONS, Limited, Royal Exotic Nursery, King's Road, Chelsea, staged an interesting group, in which were their new hybrid *Phalenopsis Stuartiana* Manni, staged with its parents, *P. Manni* and *P. Stuartiana*, or comparison. *P. Manni* is a botanical species with yellowish flowers barred with brown, and the hybrid showed great improvement upon it in size, and in form its sepals and petals being cream-yellow spotted with red, and their bases tinged with purple. The change in the lip of the hybrid showed *P. Stuartiana* only in the development of the side lobes, which are very inconspicuous in the seed-bearing parent. The blade of the lip showed no indication of the round, dark eye of *P. Manni*. In colour it was cream-white tinged with brown (Award of Merit). Among the many coloured variations of *Epidendrum* × *elegantulum* the firm showed *E. elegantulum leucorchilum* in which the purple colour seen in the other forms is suppressed, the sepals and petals being pale yellow, and the lip pure white (Award of Merit). Another colour variation was *Dendrobium* × *Aspasia Langleyensis* (aurum × *Wardianum*), in which the reddish hue seen in other forms is wanting, and the whole flower is a clear yellow, the disc of the lip orange, and the base reddish-crimson (Award of Merit). Other remarkable plants were *Dendrobium splendissimum nobiliss* a very fine flower; *D. x Euryclea* (*lituiflorum* × *Wardianum*), a charming companion to *D. x micans*; *Epidendrum* × *Phebus* (*O'Brienianum* × *vitellinum*), with brilliant scarlet flowers, equal to *E. radicans*, and showing the suppression or amalgamation of the petals, after the manner common in this class of hybrid, the flowers consisting of three outer segments, and a curved column, to which is attached the labellum; a showy hybrid *Laelio-Cattleya* (*C. Trianae* ♀ *L. purpurata* ♂), some fine plants of *Laelia* × *Latona*, *Laelio-Cattleya* × *Pallas*, *Dendrobium* × *Cybele*, *D. x Wiganie*, *D. Rolfeae*, *Cymbidium* × *eburneo Lowianum*, and the reverse cross *C. x Lowio-eburneo*; varieties of *Epidendrum* *Wallisii*, *E. x Endresio-Wallisii*, and *E. x elegantulum*, *Cattleya* × *intertexta*, *Laelio Cattleya* × *Ascania*, *Laelia* × *Euterpe*, *Epiphrontis* × *Veitchii*, &c. (Silver Banksian Medal).

Major JOICEY, Sunningdale Park, Sunningdale (gr. Mr. Fred. J. Thorne), was awarded a Silver Banksian Medal for a group of a dozen grand plants of the fine white *Epidendrum* (c m) *leornutum*, with an aggregate of about forty heads of clear wax-like flowers—a triumph of cultural skill. Also in the group were the fine *Dendrobium atro-violaceum*, Joicey's variety, a fine specimen of *Cattleya Schroderea*, *Brassia Lewisii*, &c.

H. T. PITT, Esq., Rosalyn, Stamford Hill (gr. Mr. Aldous), showed the grand *Odontoglossum Wilckeanum* "Pitt's variety," an improvement on the one he previously exhibited, and which until now was thought to be the best extant. It bore very large flowers of fine form, the sepals clear yellow, tinged at the backs with red, and bearing on the face two or three very large red-brown blotches. The petals were fringed at the edge, clear yellow, with an ovate zone of red-brown blotches in the centre, and some few smaller spots at the base (First-class Certificate).

A. WARBURTON, Esq., Vine House, Haslingden (gr. Mr. T. Lofthouse), showed *Odontoglossum crispum Lindenii*, with clear white flowers, handsomely spotted with brown (Award of Merit); *O. Pescatorei album*, a pure white form, showing no other colour than the yellow callus on the lip; and a pretty *Cypripedium* of the *C. x Chas. Richman* class, said to be between *C. bellatulum* and *C. Faircanum*.

Messrs. HUGH LOW & CO., Bush Hill Park, Middlesex, showed *Phalenopsis* × *Schroderea* (*leucorrhoda* × *intermedia* Portel). The hybrid bore flowers of medium size, and was of a delicate bluish-white, with the base of the lip marked red and yellow (Award of Merit).

R. L. MEASURES, Esq., Cambridge Lodge, Camberwell (gr. Mr. H. J. Chapman), staged a most interesting group, in which were two fine specimens of *Cymbidium Devonianum*, with several spikes each; *Cymbidium* × *eburneo-Lowianum*, and *C. x Lowio-eburneo*, several rare hybrid *Cypripediums*, *Dendrobium nobile* Cooksoni of the best type, and other *Dendrobiums*, good plants of *Cattleya Lawrenceana*, and among curious and pretty botanical plants the rare *Pleurothallis scapula*, *P. Grobyi*, and *P. ornata*.

Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr. Mr. W. H. Young), sent a grand inflorescence of *Coelogyne pandurata*.

J. BRADSHAW, Esq., The Grange, Southgate (gr., Mr. Whiffen), staged a neat group of excellently grown Orchids, among which were a noble form of *Cattleya labiata* Luddemanniana, some fine *Odontoglossum crispum* and other *Odontoglossums*, some handsome *Cattleya Trianae* and C. Mendeli, *Oncidium olivaceum* Lawrenceanum, &c. (Silver Banksian Medal).

JEREMIAH COLEMAN, Esq., Gatton Park, Reigate (gr., Mr. King), had a very effective group, in the centre of which was a good example of *Celogyno cristata* alba, and around it were plants of the handsome, richly-coloured form of *Odontoglossum ramosissimum*, *Dendrobium nobile nobilissimum*, and other fine forms of D. nobile, D. Brymerianum, a fine variety of *Sophranites grandiflora*, *Cymbidium x eburneolum*, *Dendrobium Victoria Regina*, a noble *Cattleya Trianae*, &c. (Silver Banksian Medal).

JOHN MOSS, Esq., Wintershall, Bishops Waltham (gr., Mr. Kench), showed a fine form of *Odontoglossum Buckenianum*.

MALCOLM S. COOKE, Esq., Kingston Hill (gr., Mr. Backell), sent a peculiar form of *Cypripedium Chamberlainianum*, and *Odontoglossum triumphans aureum*.

CLAUDE HAMILTON, Esq., Dunmore Park, Larbert, N.B., sent the fine *Dendrobium nobile*, Dunmore Park variety.

C. L. N. INGRAM, Esq., Elstead House, Godalming (gr., Mr. T. W. Bond), showed *Laelio-Cattleya* x *Sir William Ingram*, a very fine hybrid that was previously exhibited.

WALTER C. WALKER, Esq., Winchmore Hill (gr., Mr. Geo. Cragg), showed *Odontoglossum Andersonianum*, Walker's variety.

Narcissus Committee.

Present: Messrs J. T. Bennett-Pot, chairman; Messrs. Scrase Dickens, Jas. Walker, J. H. de Graaff, A. Kingsmill, Revs. G. H. Engleheart and C. MacMichael, Miss Willmott, and others.

Although the improved weather of the last few days has caused the Narcissi, hitherto pent up by the rainless cold of March, to come into bloom with a rush, yet there was but one large trade exhibit in the Drill Hall, which, it is almost superfluous to say, came from Messrs. Barr & Sons. The flowers, though perhaps not so large or substantial as in some seasons, were well-finished and coloured. Henry Irving and maximus in masses were very bright, while the scarcer trumpets, such as Weardale and Glory of Leyden, were a feature of this stand.

The Silver Cup offered by Messrs. Barr for the best collection of not less than forty varieties in the various sections was easily won by the Rev. G. H. ENGLEHEART, with his own flowers. J. W. JONES, Esq., was 2nd with a neat stage of bloom, in which the white trumpets were the best feature.

A good many new seedlings came before the committee, and awards were given as follows: To Messrs. BARR, Awards of Merit to Apricot, a small well-formed trumpet having the peculiarity of distinct apricot colour throughout the corona, and to a large trumpet in the way of Glory of Leyden. To the Rev. G. H. ENGLEHEART, first-class Certificates to Lady Margaret Boscawen, a very large and striking flower in the way of Sir Watkin, but with pure white segments of extraordinary width—this is quite one of the finest forms yet raised. To Poetsens Homer, a circular flower twice the size of ornatus, with a broad eye of deep red. To White Queen, a large broad-petalled flower with a Sir Watkin-like crown almost as white as the segments. Mr. ENGLEHEART also gained Awards of Merit for Oriflamme, a medium-sized variety of the short-cupped class, the perianth white, the entire cup fiery-red; and for Lucifer, perianth cream, crown long, of glowing orange-red.

Mr. Engleheart's large stand of his own seedlings was the centre of attraction in the hall, and comprised the above and many other forms not previously exhibited. The feature of the flowers was undoubtedly the greatly intensified depth of red colouring attained, and the new or much more decided range of colour in the hitherto rare tones known as salmon, apricot, citron, and the like. Torch, Southern Star, Flambeau, Flamingo, and many other brilliantly coloured flowers created much admiration, though the exhibit also included fine trumpets, hybrids of triandrus, pure white drooping flowers of the Leedsii class, and indeed most of the form and colour known in the Narcissus. This was probably the finest series of seedlings ever shown at one time by Mr. Engleheart.

Fruit Committee.

Present: Philip Crowley, Esq., Chairman; and Messrs. M. Gleeson, Jas. H. Veitch, A. F. Barron, J. Wright, Alex. Dean, J. W. Bites, C. Herrin, Geo. T. Miles, G. H. Sago, F. Q. Lane, J. Smith, O. Reynolds, G. Norman, J. Wither, and Robt. Fife.

Mr. J. F. McLeod, gr. to J. P. Morgan, Esq., Dover House, Southampton, exhibited three dozen splendid fruits of Brown Turkey Figs, ripe and large (Cultural Commendation).

A tray of Royal Sovereign Strawberries from Mr. E. BECKETT, gr., Aldenham House, Elstree, was also recommended a Cultural Commendation. The fruits were large, and each one in perfect state for table.

A third Cultural Commendation was recommended to Mr. Muller, gr. to Lord Folke, Ruxley Lodge, Esher, for a grand lot of Mushrooms.

Mr. C. Herrin, gr., Dromore, won the premier place in the Apple competition with excellent examples of Sturmer Pippin, the produce of an aged standard tree.

Mr. J. J. Hicks, Hutton Garden, London, showed several novel thermometers, one of which is described as a new double self-recording Six's thermometer. This has been designed to enable the observer to compare any day's reading

with that of the previous day, and it is effected by leaving the tubes of sufficient length to permit of an additional scale with compressed division being placed above the other. Another novelty was Hicks' patent alarm thermometer. This differs from previous electrical thermometers in that by means of a magnet the index may be moved to any temperature desired—say 10° higher than the room is generally. Immediately the mercury reaches the index, a constant ringing of an electrical bell is commenced.

Lecture.

In the afternoon a most interesting lecture entitled "Blight and Blessing" was delivered by Mr. FRED. ENOCH, F.L.S. The discourse was very freely illustrated by means of excellent lantern slides, and explained minutely the life-history of some common garden insect pests, and of other insects parasitic or predatory upon same. As remarked afterwards by Professor Henslow, the facts Mr. Enoch so lucidly explained tended to show "the balance there is in nature."

Said the lecturer, there is probably no insect pest but has another insect that preys upon it, or is its parasite. Mr. Enoch further said that he believed it possible as did also the late Professor Riley, to increase the number of these parasites, which are helpful to the cultivator, inasmuch as they wage incessant war upon insects injurious to vegetation.

Mr. Enoch showed that this parasitism is carried on to the second and third degree—that is, that there are insects which are parasites upon parasites, and in such case the first parasite only is a friend to the cultivator, and the second one merely interferes, and in some measure prevents the good work of extermination he is engaged upon. One of the most familiar of the insects dealt with was the green aphid. This species is by no means without its enemies, for the maggot of the wasp-fly has been known to kill and suck them dry at the rate of 150 per hour. Its particular parasites are also responsible for the deaths of many more.

The Currant bud-mite was shown, and its extensive ravages alluded to. In connection with this pest Mr. Enoch has discovered a predaceous maggot that feeds upon the mite, and has obtained a perfect insect from the same. The slide represented this to be a very beautiful creature indeed. The Willow-sawfly and its parasites were beautifully shown and explained, and the Devil's Coach-horse also. The latter is very fond of the Cabbage caterpillar, and the anties whilst devouring the same were carefully explained.

R. McLachlan, Esq., who presided, in moving a vote of thanks to the lecturer, corroborated several of the facts given, and reiterated the lecturer's observations to the effect that it is extremely desirable that cultivators should acquire a better knowledge of insects, that they may distinguish between "Blights and Blessings," with a view to diminishing the former by preserving the latter.

ROYAL CALEDONIAN HORTICULTURAL.

APRIL 6, 7.—The Spring show was held on the above dates in the Waverley Market, Edinburgh. The following remarks are among some of the principal features in the display.

HARDY PLANTS.

Hardy and forced plants made the major and more striking portions of the show. The hardy Rhododendrons and the hardy American and mollis-Azaleas of Messrs. LAMHOVEN, DICKSON & Co. The groups of forced hardy plants such as Dentzias, Spireas, Roses, Genista Scoparius, Andromeda, Cytisus albus, Kalmia latifolia, and Azaleas, dropped with freshness and glow with colour. Even the premier prize for the best 12-foot table for effect, while owing much to Dendrobes, Liliums, Amaryllis, Cliveas, and Cyclamens, was greatly indebted to the magnificent specimens of Genistas Andromeda for its easy victory.

The same liberal use of hardy plants, forced or otherwise, formed characteristic features in the grand groups or tables furnished by leading nurserymen, such as Messrs. LAIRD, MITCHELL & SONS, DOWNIE, and others.

The Silver Maples, as some of the variegated Acers are often called, the Japanese Maples, Brooms, Guelders Rose, Lilacs, hardy Azaleas were all used very liberally to produce artistic effect throughout the exhibition.

MESSRS. BARR & SONS' great stand of Daffodils was very showy, as were the glowing Tulips and fine Hyacinths. And it is wise and well in these days of fever for Orchids, to pause occasionally and take note of the richness of beauty we possess in our hardy shrubs and trees when forced or naturally in season.

NEW GREENHOUSE RHODODENDRONS.

Two seedlings of Mr. McMillan's, of Trinity Cottage, Edinburgh, were certificated at this show, of which Nathaniel Bryson, named in honour of the courteous energetic assistant-secretary of the society, is a fine pure white flower, with a soft pinky blotch, that is likely to have a popular and useful future, not only for its own special beauty, but through its power of breaking into different and brighter colours.

Beautiful and fragrant as most of these greenhouse Rhododendrons are, they are receiving too many white novelties. Not that we wish to get rid of white in this family—far from it; nevertheless scarlets, golds, pinks, cream-coloured, magentas, would be welcome in blotches, spots, or even as solids. But the different species of Rhododendrons, such, for example, as R. javanicum, do not mix nicely with others. In Nathaniel Bryson, Mr. McMillan has given us a flower with a pink or blush blotch. The

other variety that received a First-class Certificate on this occasion, Mrs. McMillan, is a pure white, and specially fragrant.

On the evening before the show, April 5, the Scottish Horticultural Association held its monthly meeting in St. Andrew Square. There were several seedling greenhouse Rhododendrons then shown; and among others a pure white fragrant variety named Hereules, was awarded a First-class Certificate. Among other seedling Rhododendrons, the following were also promising white varieties:—Mr. Fitzwilliam, Miss Jessie Calder, White Queen.

ROSES IN POTS.

There were several exhibits of Roses in pots, which, however, left much room for improvement in regard to culture and setting-up. A few of the best varieties shown were The Bride, Francis Kruger, Caroline Kuster, Etoile de Lyon, Broness Rothschild, Anne Olivier, Grace Darling, Maréchal Niel.

CUT ROSES

One of the most pleasing features in connection with the cut Roses, was the excellency of the four dozen Maréchal Nels. The following were the more notable blooms in the best stands of 24's and 12's: La France, Wm. Allan Richardson, Madame Hoste, Niphetos, Madame Lambard, Réve d'Or, Duchess of Edinburgh, The Queen, Caroline Testout, and Caroline Kuster.

APPLES.

There was a capital collection of Apples, the whole of them appearing in sound condition. Among kitchen varieties we noticed fine examples of Gloria Mundi. According to the late Dr. Hogg, this fine Apple ought to have finished supplying about Christmas, but here it was in good condition on April 6. The following also were shown in good sound condition:—Alfriston, Lanc's Prince Albert, Newton Wonder, Bramley's Seedling, Hammond's Pearmain, Galloway Pippin, and Normanton Wonder and Wellington in two dishes. Dr. Hogg credits this last fine Apple with keeping till March; but here it was in good, though not in such condition as it was lately chronicled, promising to keep soundly until June.

That all too seldom seen Gooseberry-Apple was also well shown. One of the greatest merits of this valuable culinary Apple is, that it comes into use in November, and continues sound and good till Apples come again. The greater the pity that more of it is not grown, and that anyone should begin using such a sure keeper before April. As this valuable late Apple is sometimes confounded with the much smaller and softer earlier Goose Apple, it may be well to give Dr. Hogg's description of the Gooseberry-Apple, to make sure of having it true:—"Fruit above medium size, roundish, with obtuse ribs on the sides, which extend to the crown, where they form ridges. Skin deep lively green, with a tinge of brownish-red next the sun. Eye open, not deeply sunk. Stamens medium, funnel-shaped. Stalk short. Flesh greenish-white, very tender, juicy, and with a fine, agreeable, and subdued acidity. Cells obovate; axils slit."

DESSERT APPLES.

We noticed the following varieties:—Libston Pippin, Baumann's Red Reinette, Cornish Aromatic, King of the Pippins, Blenheim Orange, Reinette du Canada, Adams Pearmain, Cox's Orange Pippin, Dutch Mignonne, and Northern Spy. It is a pity that this last-named late Apple is not more grown in Scotland and the northern counties of England, where it might take the place of the scarlet and other Nonpareils, that seldom ripen of high quality in the North. The Northern Spy Apple is always distinguished by the highest flavour, the richest colour, and a Grape-like bloom. Under careful storage and handling, it also keeps till mid-summer; and the longer it is kept, the deeper becomes its colour.

OTHER FRUITS.

Beyond Apples there was but little fruit exhibited. There were no Pears; but we noticed six bunches of Grapes, four of black, and one of Muscat—in no way notable for culture or keeping; two fine apples, three dishes of Strawberries, and three collections of pots of Strawberries in fruit; and none was named. The only two bunches of white Grapes were Muscats.

BECKENHAM HORTICULTURAL.

THE members of the Beckenham Horticultural Society have, during the last three weeks, been enjoying a course of lectures on "Insects Injurious to Garden Crops," given by Mr. P. HEDWORTH FOLKES, B.Sc., Lecturer on Agricultural Entomology at the University Extension College, Reading.

Mr. FOLKES descanted upon the various forms of insect-pests, and their differing modes of attacking plants, and the most approved methods both of prevention and cure. The lectures were rendered very interesting by the lime-light pictures with which they were illustrated. At the last meeting an extraordinary cluster of fine Mushrooms was shown by Mark Webster, gr. to E. J. PRESTON, Esq., of Kelsey Park.

CATALOGUES RECEIVED

THE YOKOHAMA NURSERY CO., LTD., Nos. 21-35, Nakamura, Yokohama, Japan.—Lilies, Chrysanthemums, Camellias, Azaleas, Orchids, Maples, Magnolias, and Plants in general; Seeds, &c.

V. LEMOINE ET FILS, Rue du Montot, Nancy, France.—Chrysanthemums, Begonias, Gladioli, Polargoniums, Petunias, Fuchsias, and other plants

MARKETS.

COVENT GARDEN, APRIL 14.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arums, 12 blooms...	3 0-4 0	Orchids:—	
Azalea, doz. sprays	0 9-1 0	Cattleya, 12 bms.	6 0-9 0
Bouvardia, pr. bun.	0 6-0 8	Odontoglossum	
Carnations, pr. doz.		crispum, 12 bms.	2 0-4 0
blooms ...	1 0-3 0	Pelargonium, scar-	
Daffodils, doz. bun.	5 0-6 0	let, per 12 bun.	6 0-9 0
Eucharis, per dozen	4 0-5 0	— per 12 sprays...	0 8-1 0
Gardenias, 12 blooms	2 0-3 0	Primroses, per 12	
Hyacinth, Roman,		bunches ...	0 9-1 0
— doz. bunches...	4 0-6 0	Roses, Tea, per doz.	0 6-1 0
Lilac, Fr., p. bunch	3 6-6 0	— yellow (Pearls),	
Lilium Harrisii, per		per dozen ...	2 0-4 0
doz. blooms ...	4 0-6 0	— pink, per doz.	4 0-8 0
Lily of the Valley,		— Safrano, p. doz.	1 0-2 0
dozen sprays ...	1 0-1 6	— red, per dozen	3 0-6 0
Maidenhair Fern,		Tuberose, 12 bms.	1 0-1 6
per 12 bunches...	4 0-8 0	Tulips, 12 blooms...	0 6-1 0
Mignonette, dozen		Violets, 12 bunches	0 9-1 0
bunches ...	2 0-4 0	— Famine, French	2 0-3 6
Narcissus, various, per		Wallflowers, 12 bun.	4 0-6 0
dozen bunches ...	2 0-4 0		

ORCHID-BLOOM in variety

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Asparagus, English,		Mint, per dozen	
per bundle ...	7 0-8 0	bunches ...	5 0-8 0
— (Paris), Green,		Mushrooms, per lb.	0 8-0 10
per bundle ...	3 6-4 0	Onions, Egyptian,	
— Giant ...	8 6-—	bags ...	9 0-9 6
— Sprue ...	0 6-0 9	— cwt. ...	10 0-—
— Spanish ...	1 9-—	— Lisbon, boxes	9 6-—
— Italian ...	1 3-—	— Green, per doz.	
— Perpignan ...	1 4-—	bun. ...	3 0-4 0
— Cahore ...	1 0-1 10	Parsnips, per bag ...	2 0-2 6
— Barcelona ...	1 4-—	Parsley, per sieve	1 6-2 6
— Toulouse ...	5 0-—	p. doz. bun.	2 0-3 0
Artichokes, Globe,		Peas, French paper	
per doz. ...	1 9-2 6	packet ...	0 6-0 7
— Jerusalem, sieve		— Small Flat ...	4 0-—
Beans, English		— Channel Isles,	
(Dwarf), lb. ...	1 0-1 4	per lb. ...	0 8-0 9
— Channel Islands,		— Telephone, lb.	1 0-—
per lb. ...	1 0-1 3	— Marrows, ...	2 0-—
— (Madeira), per		Potatoes, Chacnel	
package ...	4 0-5 0	Isles, framed	
— French, per lb.		Kidneys, per	
(in paper pkt.)	0 5-—	lb. ...	0 4-0 5
Beetroot, p. bush.	1 6-—	— Canary Kids,	
Broccoli, Cher-		per cwt. ...	14 0-16 0
bourg, per doz.	0 9-1 0	— Algerine Kids,	
— Keat, selected	1 0-2 3	per cwt. ...	10 0-12 0
— crates ...	3 6-10 0	Radishes, Long, per	
— Guernsey p. d.	1 6-2 6	doz. bunches ...	0 8-1 0
— sprouts, per		— Boulogne, per	
bushel ...	1 0-—	doz. bunches ...	0 4-0 6
— per bag ...	1 6-2 0	Rhubarb, Yorks,	
Brussels Sprouts,		forced, doz.	1 3-2 0
per sieve ...	1 0-—	— home-grown,	
Cabbage, Cherbou,		natural ...	2 0-3 0
per doz. ...	0 6-1 0	Salad, small, pun-	
— Worcester ...	0 9-1 3	nets, per dozen	1 3-—
— Kent ...	0 9-1 3	Seakale, forced, per	
Cress, per dozen		doz. punnets ...	10 0-12 0
punnets ...	1 6-—	— natural, p. doz.	
Coleworts, or Greens,		punnets ...	10 0-12 0
per bag ...	1 6-2 0	— Scotch Kale, p.	
Carrots, in bags,		bush. ...	0 9-1 0
washed ...	2 6-3 0	— per bag ...	1 0-1 6
— in bunches ...	2 6-3 0	Shallots, per lb. ...	0 4-—
— French, flats ...	2 6-—	Spinach, p. bush. ...	1 6-—
— New, bunch ...	0 8-—	Tomatoes, English	
Celery, p. doz. rolls	12 0-18 0	per lb. ...	1 0-1 3
Chicory, per lb. ...	0 3-0 3 3	— Channel Isles,	
Onion, p. doz. ...	1 6-3 6	per lb. ...	1 0-1 1
Endive, per doz. ...	2 3-—	— Canary, deep	
Garlic, per lb. ...	0 4-—	boxes ...	2 6-3 6
Horseradish, foreign		— cases (40lb.)	11 0-—
per bundle ...	0 9-1 0	— trays ...	1 0-1 6
— Cheshire (loose),		Turnips, per bag ...	2 6-2 6
p. doz. ...	2 0-—	— bunches, new	0 9-1 0
Leeks, per dozen		Turnip-tops, per	
bunches ...	2 0-2 6	bushel ...	1 0-—
Lettuce, Cabbage,		— per bag ...	1 6-—
per dozen ...	1 0-1 4	Watercress, p. doz.	
— Cos, per doz. ...	2 6-3 6	bunches ...	0 6-0 8

REMARKS.—On Saturday last, preceding the holidays, as is often the case, the vegetable trade was dull, prices lower, including Mushrooms and Rhubarb. On Tuesday the same state of things, and the few warm days brought Broccoli on rapidly. The recently-arrived Cape of Good Hope Grapes are not in fine condition. A consignment of Tasmanian Apples is due very shortly.

POTATOES.

Trade steady. Best samples a shade firmer. Current prices:—Maincrops, Saxons, and Bruce, 105s. to 120s.; Blacklands, 105s. to 115s.; Dunbar Maincrops, 130s. to 135s. per ton. Foreign Ware, 4s. 6d. to 5s. 3d. per bag. New Potatoes, 11s. to 25s. per cwt. John Bath, 32 and 34, Wellington Street, Covent Garden, W.C.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantum, p. doz.	4 0-12 0	Ferns, various, doz.	5 0-12 0
Aspidistra, per doz.	12 0-30 0	Ficus elastica, each	1 0-7 6
— specimen, each	5 0-15 0	Foliage plants, doz.	12 0-36 0
Azalea, per dozen	36 0-48 0	Genistas, per doz.	9 0-12 0
Cineraria, per doz.	6 0-9 0	Hyacinths, per doz.	9 0-15 0
Cyclamen, per doz.	12 0-18 0	Liliums, various,	
Dracenas, each ...	1 0-7 6	per dozen ...	18 0-30 0
— various, per		Marguerites, p. doz.	9 0-15 0
dozen ...	12 0-24 0	Palms, various, ea.	2 0-10 0
Ericas, various, per		— specimens, ea.	10 6-84 0
dozen ...	9 0-18 0	Primula, single, per	
Evergreen shrubs,		dozen ...	4 0-6 0
in variety, doz. ...	6 0-24 0	Tulips, dozen bulbs	1 0-1 6
Ferns, small, doz. ...	1 0-2 0		

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, American		Bananas, bunch ...	8 0-11 0
produce, New		Figs, per dozen ...	4 0-8 0
York barrels:—		Grapes, Worthiog,	
— Gold Russets...	20 0-26 0	per lb. ...	4 0-5 0
— Beo Davis ...	23 0-28 0	— Jersey, per lb.	4 0-4 6
— Wire Sops ...	21 0-24 0	— Dutch, per lb.	3 0-4 6
— Willow Pippins	21 0-24 0	— English Col-	
— Nova Scotia		mars, per lb. ...	5 0-6 6
Russets, barrel	22 0-26 0	— Almeria, per	
— Tasmanian, of		dozen lb. ...	10 0-12 0
various sorts,		— Cape, cases ...	10 0 12 0
per case ...	11 0-15 0	Melons, each ...	3 0-3 6
— English Goose-		Pears, cases ...	12 0-16 0
berry Pippins,		Peaches, per doz.	24 0-36 0
per bushel ...	7 0-8 0	Pines, each from...	1 6-4 0
— Beddings, bush.	8 0-10 6	Strawberries, p. lb.	2 0-4 0

SEEDS.

LONDON: April 13.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., state that the late acceptable rains have naturally given some impetus to the sowing demand for Clover and Grass seeds, all descriptions of which are, however, still obtainable at temptingly low rates. For Tares, the enquiry is just now small. Rye is scarce, and wanted. There is no change in Peas, Haricots, or Lentils. Canary-seed is inactive. Hempseed is dearer. Full prices are asked for Mustard and Rapeseed. A small arrival is noted of new Scarlet Runner Beans. Low rates continue to prevail for Canadian Wonder Beans. The Board of Trade Returns give the imports into the United Kingdom of Clover and grass-seeds for the past three months as 172,614 cwt., value £237,171, as against 139,220 cwt., value £234,468 for the corresponding period of 1897.

NOTICES TO CORRESPONDENTS.

ARALIA: B. D. We cannot advise you unless we know the species.

BEETLES IN CUCUMBER-HOUSE: Constant Reader. These beetles belong to the genus *Trox*. Their natural food is animal matter, such as bones, skins, &c., and in all probability they came to you in manure or fertilizer of some kind. They are not much likely to do any serious damage, unless it be to the manure. Set traps of dry rabbit-skins, bones, and such like, and destroy the beetles that collect under them. R. McL.

BOOKS: A. Hansen. The publication ceased to appear about fifteen years ago, and the volumes can now only be bought at the second-hand book-stalls.

CEDARS: Lenden. The sand that has accumulated round the boles should be cleared away, as well as the soil down to the roots; and in place of the latter make use of some half-decayed pasture-loom, mixed with well-rotted leaf-mould to the extent of a quarter of the whole bulk, or failing leaf-mould, rotten stable-manure in smaller proportion. This should be trodden firmly, and, where necessary, washed in among the roots with clean water. A mulch of tree-leaves 6 inches thick may be laid over the area occupied by the roots, keeping it in position with a thin covering of soil. Do not employ liquid-manure, as harm might be done. It might be worth while to discover the whereabouts of the extremities of the surface-roots, and afford these new soil in which to grow.

CENTAUREA CANDIDISSIMA, syn. C. Cineraria: F. F. The plants raised from autumn-sowings are, owing to various causes, seldom so good as those from early spring-sowings—probably the dry air, lack of ventilation, and need for frequent application of water, do not suit the plant; and your partial failure with the plant is due, probably, to some or all of these. Cold-frame treatment is best, and that can be safely afforded spring-raised plants.

DRACENAS: R. T. The insect you send is one of the weevils, which are very destructive. Lay slices of Potato or Carrot on the stages to allure the weevils, and go round the house at night and catch them.

LILIES DISEASED: T. The flower-buds of *Lilium Harrisii* are attacked by a dangerous fungus-parasite of the "Botrytis" type, which was fully

described and illustrated by Professor Marshall Ward in *Annals of Botany*, vol. ii., 1888. A paper in the *Gardeners' Chronicle*, vol. iv., 1888, p. 184, probably refers to the same fungus, though under a different name. Professor Ward found the Lily-buds very badly damaged in a wet, moist summer. Probably your *Liliums* have been grown in a rather warm, moist atmosphere, with deficiency of ventilation. Plants as far gone as those sent us should be removed from beside healthy ones, and carefully burnt. Afford those left as much air as you possibly can; if they could be removed to another house, so much the better. We cannot confidently recommend any form of spraying, but experiments with a very dilute Bordeaux Mixture (see *Gardeners' Chronicle*, August 21, 1897) would do no harm, and might check the disease for the present; while, if applied before flowering next season, would probably prevent its appearance.

MOVEMENTS OF SAP: B. The fact is undoubted, but the explanation is incorrect or misleading. When it is said, for instance, that the sap at this season of the year flows with special force at and to the extremities of the branches, an impression is created that there is a channel through which the sap flows, and that there is a fluid of definite composition throughout the plant, which also is not the case. The budding of the young shoots at the extremities is due to the increasing heat and light to which the buds and growing points are subjected. It is in the bud that the activity of the protoplasm of the cells is most and earliest manifested. At the same time it is true that a supply of water is essential, and this is obtained by means of the roots. The growth does not begin below, but above.

MUSHROOM-BED: G. T. There is no necessity to cover a Mushroom-bed with litter unless the Mushroom-house is not fairly air-tight. With a brick or stone-built house furnished with a plaster ceiling, or with an arch thrown over, there is little evaporation of moisture from the beds at this season, no fire heat being employed to maintain the necessary temperature; moreover, the moisture thrown off by new beds not soiled over, and a slight sprinkling of the floor and walls suffice to prevent that aridity of the air that would extract moisture from the beds in bearing or coming on.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—W. G. B. 1, *Adiantum Cardiochena*; 2, *Adiantum trapeziforme*; 3, *Adiantum tenerum*; 4, *Davallia (Microlepia) platyphylla*; 5, *Croton Evansianum*; 6, probably *Croton irregularis*. These *Crotons* or *Codiaeums* vary so much in the foliage even of the same plant that it is difficult to name some of them accurately without seeing the plant.—H. A. Mint apparently, from the smell, specimen withered.—J. S. We cannot undertake to name florists' varieties of Indian Azaleas.—T. H. *Doronicum caucasicum*, *Cattleya Mendeliana*.

RICHARDIA ETHIOPICA: C. A. The leaf you send has become partly white in place of green. What causes such occurrences we know not, but we see them on every hand, and they go to prove how nearly related flowers and spathes are to leaves.

SPIREA JAPONICA: Florist. There is no disease in the plant, and the injury is presumably due to some cultural detail. Is it possible that strong liquid-manure water has been spilled over the foliage? Or, are they too close to the heating-apparatus?

TOMATO DISEASE: A. B. The black spot caused by a fungus, *Cladosporium lycopersici*, often figured and described in these columns. Burn all affected plants, and spray the remainder with weak Bordeaux Mixture or with sulphide of potassium, half ounce to a gallon of water, taking care to avoid spraying the fruits which are approaching ripeness.

COMMUNICATIONS RECEIVED.—J. Durward.—D. B.—J. Simpson, next week.—Jas. L., next week.—R. T.—G. Duclao.—G. E.—J. & G. Bury.—Pteris.—W. T.—J. H. Ghent.—D. B.—E. W.—A. J. N.—W. M.—H. M.—H. W. W.—A. D.—R. L. H.—D. W.—W. R. W.

DIED.—On April 9, at Mena House Hotel, Pyramids, Egypt, aged 27, EUSTACE EDWARD, fourth son of Sir CHARLES WILLIAM STRICKLAND, Bart., of Hil' enley, Malton.

—On the 11th inst., in London, on arrival from India, JEANIE A., wife of Sir GEORGE KING, K.C.I.E., F.R.S., late Superintendent Royal Botanic Gardens, Calcutta.

(For Weather, see p. x.)



THE

Gardeners' Chronicle.

SATURDAY, APRIL 23, 1898.

OSBECK'S "CHINA."

TO this country China has always been a territory of the greatest interest, sentimental as well as practical, for our own explorers—before and after Robert Fortune and Augustine Henry—have always been the most daring and the most successful. The Anglo-Chinese literature alone is sufficiently extensive to form a large library, and no inconsiderable portion of it relates to China's exceedingly rich flora, much of which yet remains to be fully explored.

Of the many interesting books on China which have been crowded into the background by the ever-flowing stream of fresh publications, there are few more entertaining than Peter Osbeck's account of his visit to China and the East Indies in 1750-51. Osbeck was rector of Haslof and Woxtorp, in Sweden, an intimate friend of Linnæus, and a member of the Academy of Stockholm and of the Society of Upsal. His work was published on his return home in Swedish, thence it was turned into German by Godlich Georgi, under the eye of the author; from German it was translated into English by John Reinhold Forster, F.A.S., and published by Benjamin White, a relative of Gilbert White, of Selborne, in 1771, in two volumes. Osbeck had a passion for detail, and the natural history of every place the ship called at on the way out is detailed at some length.

The Chinese love of gardening and of flowers leads our traveller into several interesting particulars in his account of Canton. He noticed "several little trees in flower-pots before the windows, such as are likewise cultivated in their nurseries and gardens; *videlicet*, a sort of low sweet Orange-tree, with small fruits, which are called *namany* in China, and which are used instead of Tamarinds or common Lemons in punch, and generally before they are ripe." Among other plants he noticed *Narcissus tazetta*, or Chinese Lilies, which flower in January, and are called *Soisiun-fatt* by the Chinese; "their culture requires little art; they only put so much coarse sand upon a tin plate as just covers it, and upon this they set the bulbs quite naked. These were sooner in flower when the bulbs were prevented striking downwards." Other plants most noticeable were *Capsicum frutescens*, *Thuya orientalis*, *Nyctanthus orientalis*, *Celosia cristata*, *Gomphrena globosa*, *Impatiens balsamina*, and *Ipomœa Quamoclit*, in China called *Kam-fang-fang*, which adorned the hedges around about the city. Osbeck made a number of efforts to get some knowledge of the Chinese official herbs, and the diseases against which they are made use of, but although he "offered moderate rewards," he found this to be "utterly impossible."

As the Chinese live mostly on roots, fruits, and pot-herbs, it is, perhaps, not surprising that Osbeck found the country about Canton "almost all garden." Besides Rice, Sugar-canes, and Chinese Potatoes, he noticed several kinds of Peas, and "two species of Beans, which are not usual in our country, for they require more warmth than our climate affords." One of these is *Dolichos sinensis*, which the Europeans call "Callvanses." The fruits mentioned included the Ling-Kamm, or Leng-ka (*Trapa natans*), "a fruit which looks like two horns put together, and has a kernel in the middle." Kamm-Katt, a sort of small Lemon, not much larger than a Cherry; Samm-nim, an oblong, yellow, sourish fruit, with five deep furrows, botanically known as *Averrhoa Bilimbi*, and which does not appear to have been introduced into England until forty years after Osbeck's visit; and two sorts of Orange, the Mandarin variety, "whose peel is quite loose," and the Kang variety, which is inferior to the other, and in which the peel "sits close." The other fruits and vegetables include the Mango, Tamarinds, Guayava, Gourds, Melons, Leeks, Radishes, Turnips, Carrots, Ginger, and Bamboo roots. The Chinese Potato, Fann-sio, or Fay-sio, the *Convolvulus batatas* of Linnæus, or *Convolvulus radice tuberosa esculenta minore purpurea* of Miller's *Dictionary*, a great novelty to Osbeck, is too generally known to require any description. Osbeck's comments on it are, however, curious: "these Potatoes are quite different from ours, and seem to be natives of a warmer climate, for they never flower in China, so that they would hardly grow with us, though they are more palatable, and perhaps more wholesome than ours. They are planted in the dry sandy fields, at a distance from each other, manured with human dung, and kept clean from weeds;" a penny would purchase about 100 roots. Another root which served the purpose of Potatoes is that of the Yam, in Chinese *Tdai-vio* (*Dioscorea alata*), it is planted like the Potato, on high places, about half a yard asunder, and a quarter of a yard deep; in winter it is kept in sand.

Osbeck made several botanical excursions, in several of which he fared badly at the hands of the natives; he gives a full account of the numerous plants which he saw or collected, among which was one subsequently named after him by Linnæus, *Osbeckia chinensis*, a pretty shrub which did not find its way into England until 1818. Osbeck gives a full-page plate of it, on which is inscribed its name in Chinese characters; it is figured in the *Botanical Magazine*, 4026. The whole plant is sold in the Chinese apothecaries' shops; they boil it together with old Kuli Tea, and drink the decoction in colics. Osbeck's other collections included *Rhamnus lineatus*, "a bush which till now has escaped the notice of botanists;" *Convallaria chiensis*, *foliis linearibus, corollis sex-partitis*, a medium between *Scilla* and *Convallaria*; *Ixora coccinea*, or Kang-long-sa, i.e., the Emperor's flower, which grows a yard high everywhere on the hills; *Barleria cristata*, *Mussaenda frondosa*, *Clerodendrum fortunatum*, another shrub that has "not yet been described by any botanist," *Lobelia zeylandica*, *Ruellia cristata*, and a large number of other flowering plants and Ferns.

We need not follow Osbeck on his return-voyage; his account of China and its interesting flora practically ends with the first volume. The second one is in part made up of his visits to Java and Ascension Island. This volume is of a very miscellaneous character, for

it includes a letter from Linnæus to Osbeck; a speech by the latter on his being chosen a member of the Royal Swedish Academy of Sciences, February 25, 1758, "showing what should be attended to in voyages to China;" a long account of a voyage to Surat, China, &c., from April 1, 1750, to June 26, 1752, by Olof Toreen, in a series of letters to Linnæus; an exceedingly interesting "Account of the Chinese Husbandry," by Charles Gustave Ekeberg; and it concludes with a *Faunula sinensis* and *Flora sinensis*. This book, which contains a number of full-page plates of plants and Ferns, and is provided with an excellent index, is not only in itself a very early and important contribution to the scientific books relating to China, but is also an excellent book of travels in a country in which England, through the force of circumstances, is destined to play even a much larger part in the future than she has done in the past. W. Roberts.

NEW OR NOTEWORTHY PLANTS.

Among the "New Plants" shown at Ghent were the following:—

ACALYPHA GODSEFFIANA, Hort. Sander.*
(Fig. 87, p. 242.)

A LOW-GROWING shrub, of dense, bushy habit, with shortly-stalked, ovate or ovate-lanceolate leaves, slightly cordate, acuminate, coarsely-toothed, teeth incurved; disc $3\frac{1}{2}$ to 4 inches long, $2\frac{1}{4}$ to $2\frac{1}{2}$ inches wide, green, with a few thinly-scattered rather long white hairs on the upper surface and along the cream-coloured or whitish margins; petiole $\frac{3}{4}$ inch long, densely covered with felted seta. Flowers and fruit not seen. The cream-coloured marginal variegation gives this plant a very ornamental appearance. Although the flowers are not known, there can be little doubt as to the affinities of this plant, and, indeed, there is in the Kew herbarium a specimen which may be the green form of this species. This has been referred with doubt to *A. Pancheriana*, of Bailon, from which, however, it differs widely, as also from *A. obovata*, which has retuse, red-edged leaves. Our present plant, which will prove a very ornamental stove plant, was collected in New Guinea by Micholitz. M. T. M.

ACALYPHA SANDERI, N. E. Brown.†
(Fig. 93, p. 248.)

As this species has been already described in our columns, we need not enter into detail here, but merely note it as one of the most strikingly ornamental plants we have ever seen. Of branching habit, the branches spread widely, and throw down their long bright crimson spikes, like those of *Love Lies Bleeding* (12 to 18 inches long) beneath the broad ovate leaves in the most effective manner. To see a group of these plants at Messrs. Sander's, where one can look up at these crimson tassels, is to experience a sensation not to be forgotten. It was collected by Micholitz in the Bismarck Archipelago.

ALOCASIA WAVRINIANA, Hort. Sander.‡
(Fig. 89, p. 243.)

A stately species from Celebes, and differing from any other known to us in cultivation or in the her-

* *Acalypha Godseffiana*, Mast., ex. hor. Sander.—Frutex, foliis petiolatis ovatis vel ovato-lanceolatis cordatis, basi truncatis, acuminatis serratis superne, nec non ad margines, setis longiusculis albidis dissitis munitis, disco viridi fascia latiuscula albidâ cincta. M. T. M.

† *Acalypha Sanderi*, N. E. Brown, in *Gardeners' Chronicle*, 1896, vol. xx., p. 392.

‡ *Alocasia Wavriniana*, Mast., sp. nov.—Foliis caespitosus erectis, petiolis 38 cent. long., purpureo-viridibus, flaventimaculatis, basi carnosâ lato dilatatis, superne canaliculatis arcto alatis; laminis circa 51 cent. long., 15 cent. lat., subcoriaceis, purpureo-viridibus glabris subtus cinereis basi truncatis, late lanceolatis acuminatis sinuato-lobatis, lobis latis obtusis apicem spectantibus, costâ utrinque prominente; venis secundariis remotiusculis angulâ cum costâ acutâ efficientibus et in lobis marginales desinentibus; venis tertiariis inconspicuis crebris. Flores ignoti. Ex insul. Celebes in hort. Sander a cl. Micholitz introducta.

barium. The leaves form a dense erect tuft, each leaf stalked, lanceolate, glabrous, deep blackish-green-grey on the under surface. Petiole purplish, spotted with pale green, 15 inches (38 cent.) long, of the thickness of the thumb, much dilated at the base, above channelled and deeply winged; blade about 20 inches long (51 cent.), 6 inches wide (15 cent.), lanceolate acuminate, truncate at the base, deeply pinnately lobed, lobes bold, rounded, pointing towards the apex of the leaf; midrib prominent on both surfaces, secondary veins remote, coming off at an acute angle, and terminating in the marginal lobes; tertiary veins crowded, inconspicuous. The species is a native of Celebes, and was introduced to the Sanderian nursery by Mr. Micholitz. It has been named in compliment to the Comte de Wavrin. *M. T. M.*

FURCRAEA WATSONIANA SP., *Hort. Sander.*
(Fig. 90, p. 243.)

A beautiful and striking species, with leaves in tufts, each leaf spreading, as long as the arm, $2\frac{1}{2}$ inches wide, convolute when young, undulate at the margin, and provided at distant intervals with minute spines. The disc of the leaf is bluish-green, with alternate bands of cream-coloured variegation.

PTYCHOSPERMA? *WARLETI*. (Fig. 91, p. 244.)

A Palm with silvery-grey stem more or less thickly covered with coarse blackish or purplish hairs. The foliage is pinnate, the segments oblong cuneate, rose at the margins, and silvery beneath. We do not give the dimensions as the plant is still young, and likely to develop in size and form as growth goes on. In the meantime it is very distinct, and highly decorative in character.

LEEA SAMBUCINA (= *L. ROEHRSIANA*, *hort. Sander*).*
(Fig. 92, p. 245.)

A tropical climber, with pinnate foliage, 16 inches (40 cent.) long; each pinna is very shortly-stalked, $6\frac{1}{2}$ inch (17 cent.) long, $2\frac{1}{2}$ inches (6 cent.) wide, glaucescent, cordate, oblong, acuminate, coarsely crenate. The young leaves are bronzy-green, and the stem is marked with raised green spots.

This is a plant allied to *Cissus*, and found in the hotter parts of India, Malay Islands, Philippines, and tropical Australia. Not only has it this wide distribution, but it is exceedingly variable, and therefore plentifully endowed with synonyms, of which *L. Roehrsiana*, *hort. Sander*, is one. *M. T. M.*

PANAX? *MASTERSIANUM*, *Hort. Sander*.†
(Fig. 88.)

A stove foliage-plant of great beauty, elegance, and diversity in the foliage, combined with delicacy of coloration, and specially interesting as regards the form. The exact genus cannot be determined in the absence of flowers and fruit, so that the name above given is necessarily provisional. It is a shrub of scandent habit, with stalked, drooping, polymorphic, pinnate leaves about 3 feet (92 cent.) long. The petiole is thickened at the base, and, like the rachis, is greenish flushed with pink, and marked with linear white spots. After bearing four pairs of pinnae at remote intervals, the rachis suddenly bifurcates at an acute angle, one division of the rachis remaining straight and bearing three pairs of pinnae, the other straight below and above, flexuose in the middle, and bearing three alternate pinnae beneath, followed by a pair, one leaflet on either side of a terminal one. The



FIG. 87.—*ACALYPHA GODSEFFIANA*: *HORT. SANDER*. A SHRUB WITH GREEN LEAVES, EDGED WITH WHITE.
(Shown at Ghent as a New Plant. See p. 241.)



FIG. 88.—*PANAX MASTERSIANUM*: *HORT. SANDER*.

* *Leea sambucina*, Willdenow, Sp., Pl., i., 1171; *Rumph. Ambonua*, iv., 45; Lawson, in Hooker's *Flora of British India*, i. (1875), 666. *L. Roehrsiana*, *hort. Sander*.

† *Panax? Mastersianum*, *Hort. Sander*.—Frutex scandens glabra; petiolis basi incrassatis roseo-viridibus, lineis albidis notatis; laminis magnis metralibus recurvis pediculis, polymorphis, oblongo lanceolatis remote (impari?) pinnatisectis, segmentis (circa 21) oppositis raro alternis, petiolulatis, petiolulis 5 cent. long., supra medium articulatis, infra articulum subteretibus antice superne canaliculatis roseis; laminis glabris anguste lanceolatis acuminatis basi angustatis margine grossiuscule serratis serraturis subulato-spinulosis, nervo medio utriusque prominente roseo, venis secundariis arcuatis. *M. T. Masters*, ex *hort. Sander*.

stalks of the leaflets or ultimate segments are $2\frac{1}{2}$ ins. (7 cent.) long, subangular, articulated at the upper third, dull reddish in colour. The blade of the leaflets is about 10 inches (25 cent.) long, $1\frac{1}{2}$ inch (4 cent.) wide, glabrous, pale green flushed with

foliage is specially conspicuous; and, doubtless, no two leaves will be found quite similar.

The plant is native of the Solomon Islands, from whence it was introduced to Messrs. Sanders' nursery by Mr. Micholitz. *M. T. M.*



FIG. 89.—*ALOCASIA WAVRINIANA*: MAST. EX. HORT. SANDER. LEAVES BRONZY-GREEN, MUCH REDUCED. (SEE P. 241.)



FIG. 90.—*FURCRAEA WATSONIANA*: HORT. SANDER. CREAM-COLOURED VARIEGATION, MUCH REDUCED. (SEE P. 242.)

pink, linear lanceolate acuminate, tapering at the base; midrib reddish, prominent on both surfaces, especially the lower; secondary venation arcuate; margins saw-toothed, each tooth with a small subulate spine. The description here given applies to the leaf before us, but this is a group in which diversity of form in the

PANDANUS SANDERI, Hort. Sunder. (Fig. 94, Supplementary Illustration.)

This is a stove species of tufted habit, with long (30 in., 77 cent.), sword-shaped, variegated leaves, with minute marginal spines, not unlike those of *P. Veitchii*, but of denser habit, and differing much in the vari-

gation, which in this case is golden-yellow, and in place of being confined to the margin, or nearly so, it is distributed in narrow bands of yellow and green in alternation throughout the length of the leaf. It is a very showy stove shrub, and will be popular with gardeners from the brilliancy of its coloration. *Pandanus Veitchii* was first mentioned in Dallièr's *Plantes Ornamentales*, and afterwards in the *Gardeners' Chronicle*, 1868, p. 349, but little is known of the species; and the same remark applies to the beautiful form new before us. *M. T. M.*

RESTIO SPS., F. W. MOORE. (Fig. 96, p. 251.)

We ought to be familiar with the species of this genus, having recently monographed them in the *Flora Capensis*, and possibly because we do know something about the genus and its allies, we hesitate to identify the present plant, of which the sterile stem only is before us. It is of feathery habit, the very slender green branches being arranged in tufts springing from the axils of closely convolute mucronate sheaths. As will be seen, it is an ornamental plant, suitable for filling up gaps in the greenhouse stage, or possibly in the fernery; but as the species generally grow in dry places, too much moisture would be prejudicial. There are several species of highly decorative effect, so that it is remarkable that only one or two have been introduced, and these are not seen out of botanic gardens. *M. T. M.*

PINUS THUNBERGII AUREO-Variegata.

This is a form in which the "needles" are transversely marked with alternating bands of green and yellow. Dr. Mayr, in his book on Japanese Abietines, mentions and figures other varieties of similar nature.

CERATOLOBUS MICHOLITZIANA. (Fig. 97, p. 251.)

A very elegant Palm, with the caudex and rachis provided with scattered spines thickened at the base. The leaves are oblong, the leaflets remote, linear-oblong, acute, paler on the under surface.

HOME CORRESPONDENCE.

SPECIES OF SEDUM AS CARPETING FOR FLOWER-BEDS.—Some time back, I recommended covering beds with an evergreen Sedum, a bit of which I enclose, and dotting bulbs singly about it. I have now carried this out on a large raised bed at Oakwood, using bulbs having blue flowers, such as *Chionodoxa gigantea*, *C. Luciliae*, *C. Sardensis*, and different *Muscari*; this has been much admired, and is, I think, worthy of a note. I proposed trying another Sedum-bed with the best of the smaller and dwarfer species of *Narcissus*. Another quite different bed is now in beauty, a tree of Weeping Cherry (*Cerasus pendula*), now in full bloom, had thickly planted beneath it Primroses of many different colours; and the effect of the flowers above and below is, I think, good. *George F. Wilson, Heatherbank, Weybridge Heath.*

SPRING-FLOWERS AND SUNSHINE.—For many years I have observed that the amount of sunshine in each year, especially during the three spring months, is the measure of abundance or deficiency of spring-flowers in the next year, so that we know beforehand what to expect. Last year in this part of the country, the spring months were unusually sunny. The amount of bright sunshine in this district, which is not generally favoured with much sun, was greater than in any of the sixteen years during which records have been kept. In all the six districts into which England is divided for meteorological observation, the sunshine of 1897 was equal to or above the average of the last sixteen years, and for spring-flowers it was greatest at the right time. In this—the North Western district—it was fifteen per cent. above the average. Many spring-flowers depend upon the sunshine whilst the leaves of the year are maturing their growth; and those have flowered this spring with unusual abundance and vigour. Daffodils are an unfailing illustration of this; and Daffodils at Edge were never so fine as this spring, or had the number of flowers so great in proportion to the number of leaves. The variety *maximus*, the finest of the old Daffodils, which delights in hot sunshine, has surpassed itself. But a still more notable example of the effects of the sunshine of May and June on the following year is shown by the scarlet

Anemone hortensis. This is generally known to flower best the first spring after the importation of the roots from their sunny home in the south of France. After that they deteriorate more or less rapidly according to the seasons, and in this comparatively sunless district are often worn out in four or five years. But though it is now five years since my last importation, which consisted of a thousand roots, the sun of last year had such an effect upon them, that no newly-imported roots ever flowered so well as these have done this spring. They began early in January, and have been continuously blazing with flowers ever since, in spite of a little check during the wintry storms of March. Another plant which I have persevered in keeping for twenty years, though it has rarely given me any flowers, is the Algerian *Iris unguicularis* (syn. *stylosa*). This year it flowered for the first time abundantly through January and February. I could multiply examples, but those I have given are the most conspicuous of them. *C. Wolley Dod, Edge Hall, Malpas.*

"THE LOST ONION TRADE."—I have read Mr. C. Herrin's letter in a recent issue on this subject with great interest. It seems strange, and almost impossible that these French growers can sell so great a quantity of Onions retail amongst our own country folk to make it worth their while to come and stay so long here. It means that it is a large and growing undertaking. What would the French say to our putting a prohibitive duty on Onions? Only French-grown ones, of course. No Englishman dares (in the company of Englishmen), to suggest a duty on anything. Some few years since, the market for hothouse Grapes here got rather congested, and prices ruled very low. As we all know, an enormous growth has of late years taken place in the production of Grapes in the neighbourhood of London and Worthing. So Paris was tried, and with great success; a large trade at good prices began to develop, but no sooner did the few growers of hothouse Grapes in France find their trade being spoiled and prices lowered, than they petitioned their members of Parliament. The common-sense of Parliament was brought to bear on this important and national matter, and things were very soon put right—5s. per kil. (about 2 lb.) was put on as duty, which naturally completely stopped our share in that trade. Some things are better managed in France than in England, and it might help our Onion trade if we put a duty on French Onions, and kept it on until they take off the Grape-duty. *A Roland for an Oliver.*

BLIGHT AND BLESSING.—It would be a very great blessing indeed if some one would introduce me to a parasite or parasites that will check the ravages of the wireworm. Two years ago I took a piece of ground in the Bath Road, Hounslow, that was originally an Apple orchard, and for the space of four years had been untouched by the cultivator. It had become a dense mass of weeds, and when broken up a good deal of the rubbish on the surface had to be charred. The land is so infested with wireworm and destructive grubs, which destroy my Primrose and Polyanthus plants wholesale, and ruin Cauliflowers. It is said that the mole preys upon grubs, &c., but they do so much damage through their upheavals that I am driven to trapping the animals. If only some one would gain immortality by suggesting a sure method of destroying wireworms without injury to plant-life! I have, on the whole, a fertile soil, but the wireworms wreck certain crops, displaying in particular a great liking for the Primrose. There ought to be power to indict a fine upon anyone who allows useful land to lie untilled and grow weeds, the seeds of which spread abroad, and infest the land of others in the neighbourhood, to their detriment. On taking possession I found the Apple-trees starved, badly cankered, affected with American-blight, and with the larvae of various species of moths which affect Apple-trees in abundance. I had to cut away half of the branches of the trees in the endeavour to get the latter into a healthy condition. I would not be so much concerned were it not for the ravages of the wireworm. Will someone suggest a blessing in the way of a remedy. *R. Dean.*

DISEASED PINUS MONTICOLA.—Your correspondent, Wm. G. Smith, Yorkshire College, Leeds, in a recent issue of the *Gardeners' Chronicle*, has some interesting remarks on a dangerous disease of the Weymouth Pine. I send along with this note for your inspection some diseased branches of *Pinus monticola*, the cause of which I suppose to be the

dreaded rust (*Peridermium Strobi*), to which he refers, the symptoms are quite the same; only, strange to say, the Weymouth Pine is growing in close proximity to some large diseased trees of *P. monticola*, and is still quite free from attack. Unfortunately, it is spreading over all the *P. monticola* on the place, both old and young, and is getting very bad on some splendid trees over 60 feet high. The first time I noticed it was five years ago on a fine, healthy *P. monticola*, 10 feet high at about 1 foot from the ground beneath the first whorl of branches. The fungus was then (June) quite golden in colour, and when touched, it was scattered about like pollen. That tree was removed, but the disease has spread over a radius of 1000 yards. No species of *Ribes* is infected with it that I have seen, and no plants have been got from any nursery, all the young plants being raised from home-saved seed. I notice the young trees are

the whole bark is infested by the fungus-body, and so deeply imbedded that no curative agency can reach it. The Larch-canker has a somewhat similar mode of attack, and as yet no cure has been found except the clearing out of diseased specimens. The Larch is a tree of the Alps, and Larch-canker is well known to be worst on trees planted in low-lying, moist situations, while on higher ground it is less common. *Pinus monticola* is a native of the mountains of Northern California, and cannot be regarded as very hardy in Britain. May it not be that the trees are planted on the lower-lying grounds of Murthly, and thereby weakened in constitution, and rendered liable to this blister-rust?"

ALSTREMERIAS.—Mr. E. Jenkins (p. 220) assumes too much when he says that "Mr. Ward does not appear to be aware that dozens of continental bulb-farmers, and also English growers of miscella-



FIG. 91.—PTYCHOSPERMA? WARLETI: HORT. SANDER. (SEE P. 242.)

usually affected on the bark low down, and the older trees on the points of the lower branches. The rust is also pinker in colour. If any of your numerous readers can suggest a remedy other than taking them out, all lovers of this fine Conifer would feel grateful. *James Laurie, The Gardens, Murthly Castle, Perth.* [Mr. W. G. Smith, of the Yorkshire College, Leeds, to whom we forwarded the branches of *Pinus monticola* sent by Mr. Laurie for inspection, remarks:—"The specimens of *Pinus monticola* forwarded are badly injured by the Pine-bark Blister-rust (*Peridermium pinii*), and not by the Weymouth Pine-rust. In spite of a considerable amount of research, the life-history of this blister-rust is by no means cleared up; the Pine stage of the disease is very common, yet the stage corresponding to the *Ribes* stage of the Weymouth Pine-rust is still obscure. The swellings on the branches, with the copious exudation of turpentine-resin disfigure the Pines very much, and they cause withering up of the younger parts of the tree. Unfortunately, long ere the swellings appear

neous bulbous and tuberous-rooted plants have special methods in producing the right sort of saleable root, a matter only to be accomplished by, among other things, an annual lifting, a sorting, and a replanting of the group in question." Mr. Jenkins (by implication) includes himself among the specialists referred to above, as he informs the readers of the *Gardeners' Chronicle* in concluding his note that, "I (Mr. Jenkins) have grown many thousands of the best known kinds without the loss of any of them," adding, "of this quantity a goodly proportion was reserved for annual lifting, to supply customers," remarking that, "only those directly engaged in the work can form any idea of the superior character of the roots which this system and good tillage furnish." I beg to inform Mr. Jenkins that I am perfectly familiar with the above-mentioned practical details, as well as with the names and addresses (in which list I may now include his own) of special continental bulb-farmers, and also English growers of miscellaneous bulbous and tuberous-rooted plants, with a few

of whom I have had business transactions, and at the same time to remind him that an allusion to these facts in my original article (p. 156) was not in the least degree necessary. Mr. Jenkins, in reference to my recommendation of a space of 18 inches being allowed between the rows of *Alstroemerias*, and 1 foot between the patches of three or four seeds in the rows, says, "the same writer would cramp an already developed plant into a pot." And then he goes on to say, "Surely if the seeds of these *Alstroemerias* require so much freedom as 18 inches by 12 inches asunder in the rows, &c., a plant already past the seedling

of transplantation. As a rule, the plants do not remain long enough in the pots to become unduly pot-bound. Mr. Jenkins says, "So far as the hardiness of these plants is concerned, my experience coincides with that of Mr. Divers, that at 6 inches deep, the majority of the species are safe." And Mr. Divers says (p. 205), "four of the varieties named are quite hardy in our cold clay soil, having survived the severe winter of 1895-96 without injury and without protection;" adding "This was a sufficient test, the temperature on the ground being as low as 8° below zero. In view of these facts, readers of the

reasons for altering my original statement, "wherein all the reputedly hardy kinds [varieties] were unconditionally recommended for field culture." And all that has been written on the subject since has only served to bring a most beautiful and useful genus of plants prominently before the readers of this journal, and to furnish fuller details in regard to culture, but the original facts set forth at p. 156, hold good all the same, the somewhat hair-splitting statements of Mr. Jenkins to the contrary. At the same time, I fully admit that most subjects of practical horticulture are the better by being discussed in the columns of the *Gardeners' Chronicle*, and the readers as well as the writers benefit thereby. Criticism is a healthy thing, and I have not the slightest objection to writings of mine being criticised, the reverse being the case. *H. W. Ward, Rayleigh.* [Correspondence on this topic should now cease. ED.]

NURSERY NOTES.

A NEW HARDY PLANT FARM.

HAVING KNOWN Mr. Amos Perry during his long connection with the firm of Ware, at Hale Farm, Tottenham, we felt an interest in visiting his newly-made hardy plant nursery at Winchmore Hill, to the north of London, one station nearer to King's Cross than is Enfield. Mr. Perry may be described as an enthusiast in regard to hardy plants; at any rate, he has an extensive and intimate knowledge of them. This he has been turning to account in a very practical manner since having embarked in business in his own name, and about 4 acres of ground at Winchmore Hill have been laid out in nursery beds, and more or less filled with an exceedingly choice collection of plants. It is a slope to the south-east, and at present lacks sufficient shelter from cold winds; but admitting the site as naturally a very cold one, Mr. Perry will be able to modify the conditions very considerably by planting suitable species of trees as "wind-breaks." In summer the other extreme is likely to occur, as the slope is exposed to much sunshine. The loam is yellow, and apparently very good, of considerable depth, and rests on a subsoil of clay. Under such circumstances it was not surprising that there were yet few species of plants in flower [April 4], for the month of March was unkind, commencing fairly warm, and growing less and less warm until the weather at its close was blizzard and frost.

In the absence of masses of flower, therefore, our time was occupied in looking through the collections of the rarer plants, and chatting upon the system most suitable to the partial protection of some of the less hardy species during winter and spring. We do not intend to go deeply into such matters here, but in one case it may be interesting to give Mr. Perry's very simple, and (so far as it has been tested) effective practice. The *Tritomas*, and especially some of the yellow-flowered varieties, are easily injured by severe frost or cutting winds. Mr. Perry has a collection of about thirty varieties; the plants are in narrow nursery beds, and on either side of each bed has been planted a stout row of a tall-growing perennial Aster, the tops of which are left uncut until cold winds in spring have ceased, by which time the new Aster growths are pushing apace. These are capital wind-breaks, and in addition to this the plants have loosely strewn over them the flowering stems of Asters cut down in the winter, which serve to protect the plants from frost. All of the *Tritomas* look capital, and will be sure to flower finely, but it must be granted that the winter just passed has not been a severe one. In the cold midland counties we used to liberally mulch the *Tritomas* with manure each autumn, and by the exercise of a little care very few of the plants suffered injury. The double-flowered *Hollyhocks*, of which Mr. Perry says he has about forty distinct coloured varieties, were hardly through the ground. Primroses in numerous strains were aglow with flowers, and one of these, with plum-coloured flowers, had quite a novel tint. That early and fragrant Wallflower, Harpur Crewe, with its profusely-leaved numerous branches, was blooming freely, but the older yellow-flowered sorts were yet in bud. Close to this was noticed an exceeding dwarf



FIG. 92.—*LEEa SAMBUCINA* (VAR. *ROEHRsIANA*, HORT. SANDER). MUCH REDUCED.

(SEE P. 242.)

stage cannot be benefited by being confined in the small pots usually adopted by the trade." Mr. Jenkins, in writing thus, seems to be unmindful of the facts involved therein, namely, that the seeds and the plants resulting therefrom are afforded the spaces indicated, in order to admit of the plants developing themselves to large and profitable dimensions for several years to come—in short, they are put into the ground to remain there undisturbed for a series of years by the flower-farmer, while the reverse is the case with tiny plants potted-up by the trade in the autumn, or resulting from seed sown in small pots, so as to enable customers to make plantations of this most serviceable and beautiful class of plants without subjecting them to a check in the process

Gardeners' Chronicle may look forward in the near future to seeing Mr. Jenkins record the fact of all species of *Alstroemeria* planted 3 or 4 inches deep in light soil of "average depth and fertility," being quite safe (this being the description of soil that I recommended the said plants being set in). I think most practical men will allow, that any plants planted at 6 inches deep in a cold clay soil, which survive in a temperature of 8° below zero (40° frost), without injury and without protection, are capable of surviving in a like temperature when planted only 3 or 4 inches deep in "light soil of average depth and fertility, and, if possible, in situations which are sheltered from the north and east winds." In conclusion, I cannot admit of any

Iberis, "Little Gem," that is said never to be more than 3 inches in height; its flower-buds were about to burst. There were very large buds of the bright orange-flowered Geum Heldreichii, which we were informed represented an unusually good variety. Most of the Lilies grow exceedingly well here, and a very representative collection already exists. The same may be said of Perennial Asters, Pæonies, and Eremurus. Amongst the flowering plants, we noticed Pentstemon Menziesii, a trim-looking evergreen shrub, about a foot high; it will later produce gentian-blue coloured flowers. Aquilegias do well, and especially the very fine one known as A. Stuarti, a deep rich blue flowered plant with white corolla. Among the Fritillarias was the pretty F. pluriflora in bloom; the flowers are light rosy-purple in colour, with radiated purple base, and were figured in *Gardeners' Chronicle*, April 10, 1896, p. 231. In a raised and partially-sheltered bed was a collection of Erythroniums, including a fine lot of the Californian species, of which perhaps the best is E. Johnsoni. Soldanella alpina was blooming very freely in 3-inch pots, and looked extremely pretty. In one of the borders was a moderate sized plant of Hedysarum multijugum just commencing to show signs of growth; and Veronica Hectori, a New Zealand species, looking like a giant moss or miniature Conifer. Heuchera sanguinea in batches looked capital, and Mr. Perry says he has an uncommonly good variety of this splendid plant. The white-flowered Heuchera does not promise great things at present, and is hardly likely when better known to prove so valuable a plant as H. sanguinea. Perovskia atriplicifolia has passed through the winter safely; at present it is nearly bare of leaves. The foliage when produced later in the season will be silvery, and the flowers are blue, but it is a very rare plant in this country.

BELGIUM.

PHENICOPHORUM SEHELLARUM.

At the Horticulture Internationale, at Brussels, is to be seen now a considerable number of this grand tropical Palm. Coming from the tropics, it needs a high temperature to grow it successfully. It is not safe to let the temperature of the house fall often below 60° during the winter season, in fact, 60° should be the minimum at any time; the other point to observe is not to allow any cold drips to fall upon the leaves from the roof. Given these two conditions, and that of an abundance of water, it will be one of the finest possible features in any stove-house of sufficient dimensions. As an example of what an amount of water it will stand, I might quote as an instance, that of the large plant in question, which from force of circumstances became too tall for the house, and had to be sunk into the central tank of warm water. It stood the treatment well, and even thrived upon it. It is a pity such a grand tropical plant as this should be so seldom seen in English gardens. H.

TREE FERNS IN THE BOTANIC GARDENS, BRUSSELS.

Several well-developed specimens are to be seen here, being evidently in quite congenial quarters. The examples of Cibotium princeps are of remarkable dimensions, and owing to the absence of overcrowding, are developed in a perfect manner; C. Schodei is also in good form here. There is likewise a large plant of Cyathea medularis, which, standing as it does, near to C. princeps, affords a remarkable contrast as the stems of one are of a pale fawn-colour, and the other (the Cyathea) nearly or quite black. Of the Cibotium, there is a remarkably tall plant, fully 30 feet in height, with a slender stem, which does not really appear strong enough to support the canopy of fronds at the summit. The Marattias are also grown well in this lofty house. H.

THE GROOMING OF PALMS.

Good illustrations of the best methods of displaying specimen Palms and other fine-foliage plants may be seen in several of the continental nurseries.

A favourite plan is to raise the best specimens upon pedestals sufficiently high to walk under them with advantage and comfort. In this way seats can be arranged with convenience, and the utmost possible use can be made of the ground space. Another method is to completely cover the end walls of span-roofed houses with rock-work, and then by judicious planting to cover it as soon as possible. If there be sufficient room at the base, a convenient spot is found for a well-developed specimen Palm or Tree-Fern, under which a ground-work or carpeting is arranged, care being taken not to overcrowd the individual specimens. H.

FRUIT REGISTER.

PEAR TRIOMPHE DE VIENNE.

A FINE looking fruit, in form and length of stalk near resembling Jargonelle, with a rind varying from greenish-yellow and light yellow to a tender carmine-red tint on the sunny-side, and covered with russet patches as to impart roughness to the touch. The flesh is whitish, and just beneath the rind yellowish, melting, juicy, pleasantly sweet, spicy, and good flavoured. The core is small, and the seeds blackish, but usually imperfect. Ripe the middle of September, and in unfavourable districts at the end of that month, and the beginning of October. The tree grows with vigour on Wilding or Quince stocks, and takes naturally the pyramidal habit. The variety was raised by M. Jean Celland, a gardener at Vienne, Department de l'Isère; and was first distributed by MM. Blanchet and Morel, nurserymen, at the same place, and at Vaise-Lyon in 1874. We notice the variety in Messrs. T. Rivers & Son's catalogue for 1897 and 1898, among select Pears, but it is absent from the revised R. Hogg's *Fruit Manual*. A coloured illustration of the fruit is given in the *Gartenflora*, April 15, 1898.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

The Management and Sowing of Peas.—The weather being dry in the south, water must be afforded to transplanted Peas in the open, and crops of Peas growing in pits, &c., and protection likewise on nights when frost appears likely, and also on cold days. When Pea-plants appear, lightly mould them up, and then sprinkle them with fresh soot or dry lime. Do not use Pea sticks with blunt ends, or the roots may get injured, but give each a sharp point, and place small twigs on either side of the rows, and thus maintain the plants erect. These twigs, as also the Pea-sticks proper, should not meet at the top. Peas for the main crops may now be sown in trenched but not necessarily highly manured soil, and the following varieties will be found of superior flavour and very productive, G. F. Wilson, height 4 feet; Sutton's Magnum Bonum, height 4 feet; Ne Plus Ultra, height 5 feet; and Reading Giant, height 6 feet. The above varieties are wrinkled Marrowfat Peas. Varieties for present sowing of lesser height are Renown (new), Windsor Castle, McLean's Best of All, and Walker's Perpetual Bearer.

Cauliflowers.—Take advantage of showery weather to transplant Cauliflowers, putting some of the plants on a warm border, and for small growers like Early Forcing, at a distance of 1 foot apart. As a protection against cold, place a 6-inch flower-pot over each plant at night, or employ evergreen twigs for that purpose. Plants raised from seed sown in March ought to be fit for pricking-out in nurse-beds, or if weak, then on to a mild hotbed, but do not coddle them with top-heat or much use of glass or thick coverings at night.

Forced Vegetables.—Sowings of French or Kidney Beans should still be made at regular intervals of time in pots or on hotbeds. Water will be required in abundance by plants in bearing, and the syringe to be freely used twice a day. The frames and pits vacated by the early Potatoes may be utilised for raising French Beans, sowing Williams' Early Forcing and Veitch's Early Favourite, whose pods will be ready for gathering in from six to eight weeks from

the time of sowing. Gather the shoots of Seakale as soon as it is large enough, as this vegetable toughens if left long in darkness; make up Mushroom-beds and afford water at 80° to beds that are in need of moisture, and let the Mushroom-house be damped-down mornings and evenings, and the temperature kept at 60°.

General Hints.—Examine beds and lines of all kinds of roots, and where entire or partial failure has taken place, re-sow the land without delay, or sow in another place, as may be deemed best. Thin the rows of Spinach, mould-up Broad Beans, wage constant war against weeds, and keep the soil stirred by hand-fork, hoe, or other tool among crops of all sorts.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Carnations.—Those plants which have been wintered in pots in cold frames, will have been in most parts of the country planted out some time ago, as was advised by me in an earlier calendar. During dry weather these plants will stand in need of water occasionally in order to prevent their flagging, and to assist root action. Those layers and seedlings which were planted in the autumn of last year, will in most cases have made good progress; and to assist growth, the soil between the plants should be stirred with the hoe, and about the end of the month they should receive a top-dressing of well-rotted Manure, room-bed manure, wood-ashes and fresh soot, the whole of these matters being mixed together and run through a coarse sieve. This dressing should be laid on evenly, about one inch thick. The increase of vigour in the plants will soon make it apparent that they are deriving benefit from the dressing, assuming that the plants were in a healthy state. Each plant should be provided with a neat stake in readiness for securing the flower-spikes thereto, some of which are already well advanced. A common mistake made by Carnation-growers in the south of England, and the cause of a great many failures, is the coddling of the plants in the winter, and neglecting to treat them as hardy subjects. If layers are plentifully furnished with roots early in August or the beginning of September, and are then planted, there is no fear about the plant's surviving the winter. But it is different when the layers are taken off when one or two little roots about one-eighth of an inch long are apparent, for then they may succumb to the perils of even a mild winter. Carnations cannot have too much sun; moreover, they should not be planted in confined places, else a good deal of damping will occur among the plants during the winter. If seed was sown early in the month of March this year, the seedlings should now be fit for placing in 3 inch pots. The potting should be done firmly, and the soil used a fairly-rich sandy loam, and the pots well drained; keep them for a few days in a temperature of 55°, and gradually harden off, preparatory to planting them in the open in May and June.

General Remarks.—Work in the flower-garden is now abundant, for the lawns will need often mowing; weeds must be hoed up in beds and borders, or hand-weeding resorted to if the surface cannot be hoed; also weeds on walks must be got rid of, and the surest way to do this is to dress the gravel with one of the many weed-killers on the market, taking great care to keep the weed-killer from injuring the turf or box-edgings, &c. Continue to box off and prick out bedding plants, half-hardy annuals, &c., as fast as the plants get large enough, never permitting them to spoil by being crowded. Continue the potting of seedling Dahlias and those raised from cuttings, and afford the bedding Pelargoniums abundance of air and plenty of water whenever it is necessary to afford the latter.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorset.

Dendrobiums.—The following species of Dendrobium, viz., D. thyrsiflorum, D. densiflorum, D. Farmeri, D. Schroderae, D. Griffithianum, D. Guibertianum, D. fimbriatum, D. chrysotexum, D. suavisimum, D. Dalhousieanum, D. moschatum, D. calceolus, D. clavatium, all of which flower in racemes, and whose flower-buds are now getting prominent, should be afforded a greater quantity of water at the roots, and a slightly warmer temperature, in order to encourage the development of the racemes. If these species are to flower in the months of May and June, they should, however, still be kept rather dry at the root and cool, and afforded just as much moisture as will keep the pseudo-bulbs somewhat plump,

Dendrobium cymbidioides, now growing freely, may be repotted, if this be necessary, before root-growth begins, and the plant should be suspended to the roof of the Cattleya-house. The rare *D. Trescherianum* requires the warmth of the stove, and being at rest at this date, it requires but little root moisture; but as soon as the growths begin to advance, abundance of water becomes necessary. *D. Cologynae* is not a compact grower, for each new growth extends the length of the plant from 6 to 8 inches; a pot or pan in which to grow the plant is therefore useless, and a long teak basket answers the purpose better. Let the plant be hung up to the roof of the intermediate-house, and when growth begins, afford it generous treatment. As the plant revels in sphagnum-moss growing luxuriantly around the base of the pseudo-bulbs and under the rhizomes, the old dead moss should be removed, and living substituted for it, pricking it in all over the surface. *D. scabrilingue*, better known as *D. hedyosmum*, is now in bloom, and appears to thrive best when suspended to the roof of the intermediate-house.

Miltonias.—In the same temperature plants of *Miltonia Phalaenopsis* will be in full growth. Unfortunately, this is a plant seldom seen in fine health, owing to its liability to attack from a species of red-spider (acarus). The best means to clear off these pests is to dip the foliage two or three times a day during bright sunshine into tepid water. The flower-spikes should be removed from sickly plants, and the plants be divided into small pieces and repotted in well-drained pots, using as potting material sphagnum-moss only. *Miltonia Roezlii* is another rather difficult species to keep in good health, and it succeeds best at the warm end of the intermediate-house; and, being a plant whose roots keep close at home, it should not be overpotted, and the roots are the stronger when they seize firmly on to the inside surface of the pot, and when that occurs the plant may then be afforded abundance of water at all times. As a small species of yellow Thrips are apt to infest the young leaves, it is advisable, when using the XL All vaporiser in a house to place these plants therein.

Catasetums, *Cycnoches*, and *Mormodes*, very fine objects when in flower, as well as curious and interesting plants, are on the move, and should therefore have early attention, shaking them out of the old compost, cutting off dead and decayed parts, carefully examining the pseudo-bulbs for mealy-bug and scale, especially at the base, for if they are not thoroughly cleared of these insects before repotting, they will be troublesome throughout the season. *Mormodes* and *Cycnoches* will grow satisfactorily in well-drained pots or shallow pans, but shallow teak baskets are best for *Catasetums*. For the stronger-growing species a mixture of equal parts of peat and sphagnum-moss may be employed; while for those of weak growth chopped sphagnum-moss, mixed with a moderate quantity of small crocks, is all that is needed. The *Mormodes* do best in the Cattleya-house, and the other species delight in strong heat and a clear light at all times. For the next few weeks water must be afforded sparingly, and when the new roots have run through the compost let it be abundant. To keep these plants in good health for years, they must be afforded a generous growing treatment at the first, and afterwards a thorough ripening, followed by a long decided rest.

Eulophia Guineensis, a rare and beautiful Orchid when well grown, produces strong spikes of large rose-lipped flowers, which last for several weeks in good condition, and the plant, having now begun to grow, should be repotted. A compost consisting of fibry loam, peat, and leaf-soil in equal parts, some chopped sphagnum moss, small crocks, and coarse silver-sand, the whole being well mixed together, will suit its requirements. Let the plant be suspended to the roof of the warmest house, affording it plenty of sunlight without exposure to strong sunshine. After repotting, let no water be afforded before new roots are seen to be pushing towards the sides of the pot. When growing vigorously, it will take as much water as the deciduous *Calanthes*.

HARDY FRUIT GARDEN.

By W. H. DIVEAS, Gardener, Belvoir Castle, Grantham.

Strawberries.—As the early varieties will soon begin to flower, provision must be made for mulching the ground; and, if slugs abound, these should be trapped without delay by laying 1-inch-thick slices of Swede-Turnip about the beds, examining the latter early every morning for the slugs, which will be found on the under-side, to which they retreat soon after daybreak. They may be scraped into a vessel, and killed with fresh quicklime or

boiling-water. If this method be persevered with during mild, damp weather, for a few weeks, thousands may be caught, and much damage to the fruit prevented. I have tried other roots, such as Parsnips, Carrots, and Mangolds, for this purpose, but Swedes have proved by far the most attractive bait. Woodlice are sometimes troublesome, and are best dealt with by inverting flower-pots filled with dry moss or soft hay in the rows. Mice are the most destructive pests, causing serious damage by gnawing the seeds from the fruits when ripening, and they are very difficult to catch, not readily taking any kind of bait when Strawberries are plentiful; and they should be trapped forthwith in all parts of the garden. The rainfall during the present season has been generally very much below the average, and unless abundant rains fall soon, the Strawberry-beds should be afforded a good soaking of liquid-manure, and also one of clear water, before the mulching is put on the land. The application of water may need to be repeated afterwards at intervals, till the first fruits are half-grown. In light soils, water at the roots is especially necessary, if large and well-flavoured fruits are to be obtained. All small weeds should be destroyed in the beds with the Dutch-hoe before the mulching is put on, or they will grow up through it, and prove very troublesome when the fruit is ripening; especially if the weather be showery, and nothing in the way of weeding can be done at that time. The best material for a mulching is long, fresh stable-litter, shaken free of all droppings and short straw, and this should be carefully packed around the collar of each plant, and made to cover all the ground between the plants; if it be put on before the flowers expand, the rains, or the water afforded, will wash it clean and sweet before the fruits ripen. The worst mulching consists of lawn-mowings; but as these are short and clean, it is not so important to put this kind of mulch on the ground so early. Lawn-mowings harbour slugs and other insects, and become a slimy, slippery mass in wet seasons. If they can be dried—that is, made into hay by a few days' exposure in the sun—the mulch is not quite so bad.

Nets.—The stock of nets should be examined, and new ones ordered betimes to replace those that are worn out. Fruit-nets are best made with a square mesh, and of a size 8 feet wider than the beds, so that they can be elevated 4 feet above the surface of the ground, and thus allow space for a man to go beneath them when gathering the fruit, without the trouble and loss of time involved in taking them off the plantation.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Temporary Shelter.—The lack of space in glass-houses is an ever present difficulty at this season, and as each batch of plants is potted up, the question arises, where shall they be placed? and often they have perforce to go in unsuitable positions. Something may be done to ease the pressure, by making rough frames in some warm position with spare lights and boards, straw-hurdles, &c., which answer for a short time; failing these, frames may be made of laths and roofing-battens, so that mats, canvas, Frigi Domo, and the like can be used to protect the more forward or the hardier plants at a moment's notice. Oiled canvas nailed on light frames is a capital protector, and does not need removal during the hours of daylight. Spring weather is proverbially fickle, and every precaution must be taken to guard plants from injury by frost, hail, &c.

Propagation of Plants.—Cuttings of *Panicum*, *Tradescantia*, and *Selaginella*, may be taken and struck in heat; *Isoplepis gracilis*, or any old plants of *Carex japonica*, and *C. j. variegata*, may now be split up and repotted.

Miscellaneous Matters.—Shading must be carefully attended to, or a sudden burst of sunshine after a dull period may do a lot of harm to tender foliage plants. Some of the *Caladiums* are particularly tender in this respect, and exposure to sudden bursts of bright sunshine will spoil their appearance for the rest of the year. Plants of *Bougainvillea glabra* trained on the roof of warm houses, should have a large portion of the shoots which emerge from the main stems, thinned severely, or a crowded mass of growths, with but little flower on them, will result. Stake and tie-out the shoots of *Pelargoniums* before they become drawn, and afford the plants plenty of air when the weather is favourable. Those plants which have filled their flowering-pots with roots may be afforded weak farmyard manure-water, varied with soot-

water. *Lapagerias*, if now in free growth, will need water in abundance at the roots, and if in small borders, weak manure-water should be applied alternately with clean water. Do not allow the shoots to touch the glass or twist round the wires, but tie them in loosely, drawing them from beneath the wires, so as to cause them to droop, which is best for showing off the flowers. The house in which *Lapageria* is grown should be kept cool and well ventilated.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Grape Vines.—The little plants which have been raised from "eyes" this season having filled with roots the 6-inch pots into which they were transferred from 60's their first pots, should be shifted into 8-inch pots before they get pot-bound. "Cut backs" of one year old intended for fruiting in 1899, which were shaken out, repotted in 8-inch pots, and started in the manner recommended in an earlier article, when ready for repotting may go into the fruiting-pots, that is, 11-inch ones, which may be new, or merely old pots washed clean; if new, they should be laid in water some hours previously. The drainage of these pots should consist of clean crocks laid in 2 inches deep for 8-inch, and 2½ for 11-inch pots, the placing of the pieces being carefully performed. As the drainage in the 11-inch pots requires to be effective for two seasons, only crocks of pieces 2 to 3 inches broad should be used, and these with the hollow side downwards; and one strong piece over the hole or holes, and a thin layer of loam, fibre, or moss over all. The best sort of soil is a somewhat light turfy-loam, pulled in such pieces as will go down between the pots and the ball without injury to the roots, a peck of old mortar-rubble, and a 7-inch potful of bone-meal to each wheelbarrow load of loam, the whole being mixed and made warm before use. It should be in a moderately moist state. The first layer of soil over the drainage may be made firm and close with a potting-stick, and on this the roots should be spread that may have grown amongst the drainage of the earlier pot, then put the soil round the ball in three or four layers, ramming it each time, so that it is equally firm throughout, and finally leave a 2 inch space for water. Afford the plants sufficient water to moisten the whole mass of the soil, and shade them from bright sun in a rather close house for a few days. Do not be too free with the use of water before activity in the roots has greatly increased, and never afford any without first rapping the pots, when if a hollow sound is given forth, water is required. When Vines often require water, it is an indication that the roots are absorbing it largely, and progressing. See that the leading shoot is secured against injury, and stop the earliest side-shoots at the first joint, rubbing off the secondary shoots that spring from them. These Vines should be syringed twice on very sunny days, that is, early in the morning, and at closing time; at other times growing conditions may be secured by damping down. In order to grow strong, short-jointed, firm wood, plenty of light, heat, and a free ventilation are essential. See *Gardeners' Chronicle* for March 5.

Strawberries.—Fruiting plants, particularly those with forward fruits, will require water twice on fine days, and the syringe to be used on the foliage freely morning and afternoon after the berries are set. Successional plants may be brought into heat from the forwarding pits in order to maintain a regular supply of fruit, and this must be done till Strawberries are ripe out of doors. Should there still be plants left out-of-doors, they should be taken care of and protection afforded when the flowers appear. These late plants are valuable if the out-of-door crop is late. The best Strawberry runners for growing into plants for forcing next year are those that spring from young plants planted-out last autumn. The trues of flower should be pinched off these before the flowers begin to open, so as to throw the strength of the plant into the runners. A mulching of decayed manure put on now will add to the vigour of the plants. In dry weather, afford a copious watering occasionally, to prevent them suffering. Strawberries under glass are subject to the attack of mildew; and the most likely time is after the fruit is set. A good remedy for it is to mix half-a-pint of sulphur into a paste, and add it to 2 gallons of water, and after stirring it well, it should be sprayed on to the foliage and fruit with a spraying-syringe, and ordinary syringing should be discontinued for a few days. Should fruit be ripening, when mildew shows itself, paint the hot-water-pipes with sulphur and whiting, and keep a little more warmth in the pipes for a few days, when the mildew will be checked.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, APRIL 26 Royal Horticultural Society's Committees, at the Drill Hall, James Street, Westminster; and Lecture on "Sweet-scented Leaves versus Fragrant Flowers," by Mr. F. W. Burbidge, M.A., V.M.H., at 3 P.M. National Auricula and Primula Society, S. Section, at the Drill Hall, James Street, Westminster.

SALES.

TUESDAY, APRIL 26 Hardy Perennials, Roses, Border Plants, Carnations, &c., at Protheroe & Morris' Rooms.

WEDNESDAY, APRIL 27 Japanese Lillies, Palm Seeds, Begonias, Dahlias, &c., at Protheroe & Morris' Rooms. Border Plants, Bulbs, Lillies, Palms, &c., at Stevens' Rooms.

THURSDAY, APRIL 28 Hardy Perennials, Roses, Border Plants, Carnations, &c., at Protheroe & Morris' Rooms.

FRIDAY, APRIL 29 Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—49°8'.

ACTUAL TEMPERATURES:—

LONDON.—April 20 (6 P.M.): Max., 61°; Min., 43°.

PROVINCES.—April 20 (6 P.M.): Max., 58°, York; Min., 43°, Aberdeen.

ONCE again the quinquennial fever has visited the city of Ghent. The quaint old place, ordinarily so quiet, is given up to visitors from almost all the countries of Europe, who make it obvious that it will be a long while yet ere we get a universal language, and yet how strong is the link which the Belgians, utilising the common love of flowers, have forged. It is easy to say that the bond between themselves and their visitors is a commercial one. Even if it be so—there are few stronger. But there is something more than this. There is a sympathy between the Belgians and ourselves over and above commercial interests, and it is shown in their overflowing hospitality and their never-failing kindness.

The stereotyped expression "fine show" addressed by one to another on similar occasions is amply justified. It is more than a fine show—it is a very fine show, and even more elegantly and artistically disposed than usual. It is held in the building called the Casino, which, with the land adjoining, is the property of the Royal Agricultural and Botanical Society of Ghent. The building is so large and so convenient for the purpose that it grieves the visitor from London to know that no such place is at the service of the Royal Horticultural Society. The buildings consist of one large central hall of three aisles separated by iron

pillars, and lighted from the top. At a higher level, and communicating with the central hall by a double flight of stairs, is a series of *salons* arranged corridor-fashion, with a central dome. In addition to this there is a large temporary wooden annexe, which on former occasions has been quite distinct from the main building, but which now has been made to open out from the upper *salons*, from which the descent is made by a double staircase. This arrangement, which ensures a larger amount of space under cover, is, we believe, attributable to M. VAN HULLE, and is so contrived that almost the whole of the exhibition may be seen without going out-of-doors. The arrangement of the plants in the

vertical mirror, which gave the impression that the water was actually passing beneath the bridge, whilst, in fact, it only reached to the base of the mirror. On the bridge itself were two collections of Orchids from Mr. PEETERS of Brussels and Mr. DE VINCKE of Bruges respectively; and on the farther side a bank of plants of historical interest, as being specially associated with the name of JOHN LINDEN, whose bust occupied the centre. This exhibit formed one of the special features of the exhibition, but it is needless to give a full catalogue in this place.

We need say nothing here of the majestic Palms, stately Cycads, elegant Tree Ferns,



FIG. 93.—ACALYPHA SANDERI: STOVE SHRUB WITH CRIMSON SPIKES 12 TO 18 INCHES LONG. (SEE P. 241.)

central hall and the annexe has been confided to M. EDWARD PYNAERT, and in place of a heavy, somewhat monotonous arrangement, there is a very light and graceful disposition of plants, &c., which meets with universal approval. Without a plan it is difficult to describe it, but we may say that the boundaries and corners were as usual concealed by noble Palms and stately foliage plants. In the centre was a small piece of water, with a central fountain, and from which rose on one side a bank of Tree Ferns, on the other a similar mound covered with Dracænas and plants with coloured foliage; and at the foot was a green lawn laid out with beds of richly-coloured Dracænas and Anthuriums in the foreground. The lake was spanned by a rustic-bridge, beneath which was placed a

remarkable Aroids, and other decorative plants. Their imposing effect can readily be realised, whilst as for details we may refer to the report on the show at p. 250.

In the upper *salons* were arranged Orchids, bulbous plants, and miscellaneous plants. Here, too, were the new plants; the collection of twelve exhibited by Messrs. SANDER was allowed to remain uncontested, but it was clear that the *Acalypha Sanderi* alone was remarkable enough to have carried off the prize itself. We had the opportunity of seeing Messrs. SANDER'S plants before they were sent to Ghent; and descriptions of them, with figures on a much reduced scale are given in the present issue. The other new plants were mostly unimportant, and some were new once,



FIG. 94.—*PANDANUS SANDERI*: HORT. SANDER. LEAVES WITH GOLDEN STRIPES. MUCH REDUCED. (SEE P. 243.)

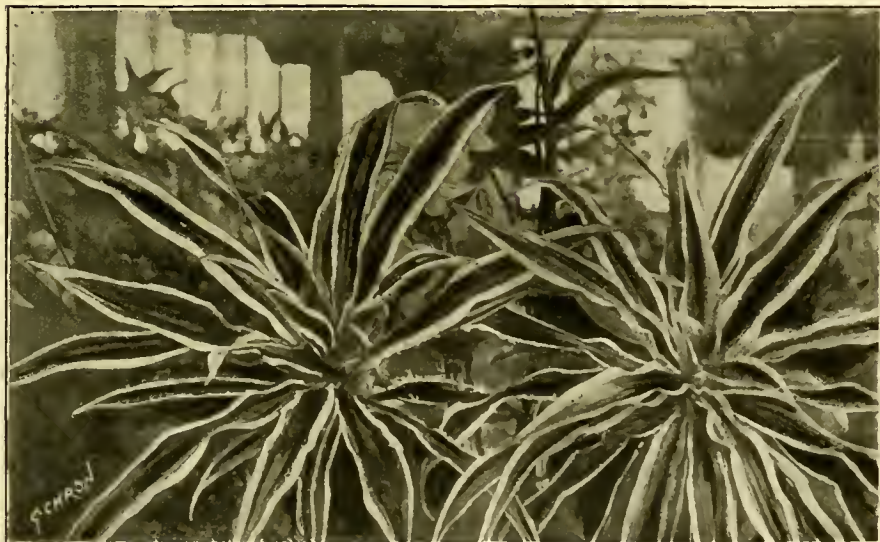


FIG. 95.—*DRACENA BROOMFIELDI*: HORT. SANDER. LEAVES GREEN, EDGED WITH SILVER. (See Report of Ghent Quinquennial, p. 250.)

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10m.

but had ceased to be so. Mr. KEGELJAN'S Gloxinias excited much attention from the great size of the blooms and width of the throat in most of them.

The Annexe, much increased in size from what it was on former occasions, contains generally a splendid collection of New Holland plants, Acacias, Camellias, and, of course, Azaleas of the Indian and mollis sections. Vast mounds of flower, with scarcely a leaf visible, form a mass of glowing colour, without which a Ghent show would hardly justify its name. We must refer our readers to the detailed account in another column for what was by no means the least interesting section of the Exhibition.

Out-of-doors there was not much worth chronicling; but the collection of Conifers of Messrs. BURVENICH, VAN HOUTTE, Père, Mr. KERKVOORDE, and others, deserve notice; and there were also in the grounds some Sweet Bays, Phormiums, deciduous Magnolias, a fine pair of Phoenix canariensis, and a similar pair of Phoenix tenuis, from M. GHELLINCK DE WALLE. Boilers and garden requisites were not exhibited so largely as on former occasions.

As to the proceedings. The jury, upwards of 200 in number, commenced their work on Friday, after an address of welcome from the Comte DE KERCHOVE. Their labours were much facilitated by the appointment to each section of a steward, who knew where every plant was to be found, and conducted the members of the section to the desired spot without loss of time or unnecessary travelling to and fro, such as is so fatiguing on these occasions. The services as messengers of a corps of little boys from an orphanage were also requisitioned. Promptly and well did these little fellows execute their allotted task.

In one or two instances the judging was not in accordance with the relative merits of the case, so far as we appreciate them—but differences of opinion on such points have been known here sometimes!

When the judging was completed, the jurors were invited to luncheon, under the presidency of the ever-active and sympathetic President, whose speeches were, as ever, singularly felicitous and well-chosen. The Minister of Agriculture, the Burgomaster of Ghent, and the President of the National Horticultural Society of Paris, spoke at some length. The last-named, M. VIGER, gave a dramatic touch to the ceremony by presenting the decoration and conferring the "accolade" of a kiss on both cheeks on M. ED. PYNAERT, who by this means received the grade of Chevalier of the Order of the Merite Agricole. No one ever deserved such a recognition better, though we fancy an Englishman would have preferred a shake of the hand!

Another interesting ceremonial was the presentation by Dr. MASTERS, acting on behalf of the Veitch Memorial Committee, of handsome medals to the Comte de KERCHOVE DE DENTERGHEM, and to M. EDOUARD ANDRÉ. What the meeting thought of the propriety of these awards was shown by the prolonged applause that was manifested. A third medal had been awarded to M. LATOUR-MARLIAC, in recognition of his success in hybridising Nymphaeas. M. LATOUR, unfortunately, was unable to be present.

On Saturday morning the delegates from the several societies of Europe, and the members of the jury, had to array themselves in raiment usually appropriated to evening ceremonials in this country. The reason for this, to Englishmen, strange and uncomfortable procedure, was

that the King and Queen were to visit the exhibition as early as 8 o'clock to receive the representatives of the several societies and members of the jury, and to take what we should call a "good look round" before His Majesty exercised his sovereign power by declaring the exhibition open. The King, as is well known, is an enthusiastic lover of flowers, and his reception of the representatives was as gracious and sympathetic as it is wont to be. It will be seen that the royal visit was no mere formal or perfunctory ceremonial.

A visit to the winter-garden of the Dowager Countess DE KERCHOVE was a very enjoyable rest after the business of the morning. The subdued tints of the giant Palms and lovely Ferns were contrasted with occasional masses of colour rendered by Azaleas, Cytisus, and the like; whilst rocks, flowing water, and green turf contributed largely to the beautiful and reposeful aspect of the whole. In the evening a *raout* was given by the Chambre Syndicale in the rooms of the Union Club. The proceedings were of the most hospitable character, but "repose" was not a conspicuous element in it.

On Sunday, the jurors proceeded by special invitation to a garden party at Laeken given by the KING and QUEEN to the diplomatic body and the nobility. This afforded an excellent opportunity for viewing the famous winter-garden which has been figured in our columns. It is now connected by subterranean passages lighted from above, and long rising corridors, lined with Pelargoniums and other flowering plants, to the chapel on the side of the hill, also illustrated in the *Gardeners' Chronicle*. This chapel is in itself a winter-garden, being of iron and glass, circular in outline, and with eight or twelve recesses or side chapels, and decorated with Palms. By means of the passages and corridors above-mentioned, it is possible to go from the Palace through the winter-garden to the chapel, perhaps a quarter of a mile distant, without going into the open air. There is a fine Orangery with three rows of trees, 112 in number, and among the Camellias four giant specimens lately imported from Pallanza, but further details must be deferred till another occasion. Mr. L. VAN OBERGEN is the highly competent and obliging Director in place of the late Mr. KNIGHT.

On the return from Laeken, the jury betook themselves to the splendid saloon of the Theatre, there to partake of an elegant banquet attended by several state functionaries, and where expression was given by jurors of various nationalities to the feelings of gratitude for the abundant hospitality and unwearying kindness and attention of our Belgian friends. This completed the public festivities. The week following was devoted to the careful investigation of the exhibition, and to visiting some of the 300 nursery establishments of Ghent.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Royal Horticultural Society's Fruit and Floral Committees takes place on Tuesday, April 26, in the Drill Hall, James St., Westminster, from 1 to 5 P.M. On this occasion the National Auricula and Primula Society will hold its annual show. At 3 o'clock a lecture on "Sweet-scented Leaves versus Fragrant Flowers," will be given by Mr. F. W. BURBIDGE, M.A., V.M.H.

HORTICULTURAL CLUB.—The usual monthly dinner and *conversazione* took place on Tuesday evening, April 12, and notwithstanding the holidays and the Ghent Exhibition, which drew off several of the members, there was a good attendance, the chair being taken by Mr. GEORGE PAUL, J.P., V.M.H. The Rev. GEORGE ENGLEHEART, who was

the guest of the evening, gave a very valuable address on seedling Narcissi, in raising which, as is well known, he has been so successful; and he exhibited some of his latest productions that had shortly before obtained prizes and Awards of Merit at the Dill Hall, which were greatly admired. An interesting discussion followed, in which many of those present joined. We hope to give this interesting address in a future issue.

THE ROYAL GARDENERS' ORPHAN FUND.—The executive committee met at the Horticultural Club on the 15th inst., Mr. WILLIAM MARSHALL presiding. The following special donations were announced:—The Kew Guild, per Mr. W. Watson, £2 5s.; the Bradford Paxton Society, per Mr. R. Scott, £1 3s. 8d.; Mr. G. Elisha, per *Gardeners' Chronicle* 5s. The investment of the amount of the J. W. Thompson Trust, and also of the sum of £500, was left in the hands of the treasurer and trustees. The sub-committee appointed to carry out the details of the annual dinner brought up a report relative to the arrangements which had been made to that date. Some further details of business were transacted.

KING'S WEIGH-HOUSE SCHOOL FLOWER MISSION.—We have pleasure in publishing the following note received from Miss F. C. N. ARMBRECHT, hon. sec. of the mission:—"May I again trespass on your kindness by asking you to allow me to make an appeal for flowers for the King's Weigh-House Flower Mission through the medium of your valuable paper. Flowers are distributed to the poor of this neighbourhood every Saturday afternoon during spring and summer. Although in the midst of such a fashionable part of the West End, there are some of the very poorest, and these welcome gladly the bunches of flowers that we bring them, especially the children, some of whom have no idea what the country is really like. Contributions of flowers (wild or garden) should arrive on Friday night or Saturday morning; carriage will be paid, and boxes and hampers returned carriage paid if desired. The parcels should be addressed to Miss ARMBRECHT, King's Weigh-House School, Thomas Street, Oxford Street, London, W.

CAPE OF GOOD HOPE FRUIT.—The *Briton*, of the Union Steamship Company, has arrived with a consignment of 911 boxes of Grapes, and 48 of Pears. The company report that some of the Grapes arrived in good condition, whilst others were poor.

THE FLORAL DISPLAY IN HYDE PARK.—The present appearance of the long series of beds skirting Park Lane, leaves little to be desired, and rarely have the Hyacinths, Tulips, and Narcissus that are planted therein in a variety of mixtures and by themselves shown to better advantage than this year. The configuration of the parterre is such, that if a variety of Hyacinth, Tulip, &c., fails to put in an appearance simultaneously with those in neighbouring beds, no hiatus is caused, as is unfortunately noticeable in some town gardens this season. (This display, barring hot sun or very frosty nights, is likely to be prolonged for ten days from the present date. Especially worthy of notice for pretty effect were the following beds. *Jonquilla campencelle* planted on a groundwork of *Chionodoxa Luciliae*; the same variety of *Jonquil* with a groundwork of *Scilla sibirica*; *Hyacinth* Lord Macaulay planted with alternate diagonal lines of *Narcissus princeps* and edged with double lines of *Hyacinth* Grand Monarch the light-blue, yellow, and bright-pink of these flowers making a charming whole. Similar was a bed of *Hyacinth* King of the Belgians, deep pink, *Narcissus* Golden Spur with *Hyacinth* Priestly, a light-blue variety that is soon tarnished by the smuts of London. A circular bed of *Narcissus* Empress standing on a carpet of *Scilla sibirica* was good. One of N. Horsefieldi, in fine condition, mixed with Tulip Joost von Vondel; the latter, however, was much too late to be effective. A mixed bed of single late Tulips and *Doronicum plantagineum excelsum*; another of mixed Tulips and *Pyrethrum carneum*, neither of these in bloom at the present time. Among the plants used in the beds some remarkable dwarf Wall-

flowers, both yellow and brown, were remarked; besides *Primula polyanthus*, *Tulip Ophir d'Or* struck us, as being an eminently suitable dwarf variety for bedding.

TASMANIAN APPLES.—The officials of the P. & O. Steamship Company send us the following:—"We have received advice by wire of the following fruit: viz., per Orient Co.'s s.s. *Austral* 20,000 boxes, and per P. & O. Co.'s s.s. *Australia*, expected about the 22nd proximo, 8,700 boxes." The *Austral* was stated, on March 19, p. 170, to be due to arrive on May 14.

"JACKS."—"We have got through 20,000 of these during the past winter," said an extensive grower of hardy market plants, the other day, "and we shall put out more shortly." "Jacks" is the coster's appellation of single Carnations, hawked and sold generally as unbloomed unnamed varieties all over the kingdom. The seed stock of plants for this year's blooming shows compact habit, and broad, stout leafage, that resembles the Clove and Malmaison sections. It is this broad leafage which leads to sale. Seeing how readily these single Carnations are raised from seed, it is to be regretted that only the foliage should have its improvements cared for, and nothing be done to improve the flowers. Probably were some enthusiastic florist to take these singles in hand, very fine flowering strains might in time be obtained. There are now beautiful single-flowered Picks, why not even more beautiful single Carnations?

OPEN SPACES IN LONDON.—The very important matter of obtaining and beautifying the available open spaces in London continues to receive the close attention of the Metropolitan Public Gardens Association, and at the monthly meeting held recently it was announced that, as the result of the representation of the Association, the Home Secretary had refused to sanction the erection of buildings on the Cross Bones Burial Ground, Southwark. It was also stated that remodelling of Charles Square, Hoxton, had been commenced. It was agreed, if its maintenance were secured, and if funds were forthcoming, to lay out the churchyard of St. Mary, Plumstead, at a cost of about £300. Amongst many other matters which engaged the attention of the meeting may be mentioned Ham Common and Lammas Lands, Bridgewater Square, the "Postmen's Park," Pymme's Park, Edmonton, and some vacant land at New Cross.

A BOTANIC GARDEN FOR ABERDEEN.—It is stated that Miss CRUIKSHANK, sister of the late DR. CRUIKSHANK, has given £15,000 to the Aberdeen University wherewith to found a botanic garden in memory of her brother.

A PUBLIC PARK FOR LEE.—The Earl of NORTHBROOK has offered to present to the inhabitants of Lee and district a piece of land of about 7 acres in extent adjoining Bromley Road, Lee, as a recreation ground, the only conditions attached to the gift being that the ground shall be taken over by the London County Council, and laid-out and maintained by it as a recreation ground. As building operations are being carried on in the locality, and there was a Board School in the immediate neighbourhood, the Parks Committee of the London County Council have not hesitated to suggest that the Council should undertake the charge of the land on behalf of the public. The value of the land is estimated at a sum of more than £4000, the cost of laying-out, fencing, seats, &c., at £1000, and the annual cost of maintenance at £200.

POTATO-SETS FOR THE IRISH PEASANTRY.—The *Standard*, April 8, states that the Local Government Board has addressed a letter to the Guardians of several Unions in the west of Ireland, stating that representations having been made to the effect that many persons employed on the relief works have been unable to avail themselves of the Seed Supply Act this year owing to poverty and the high price of seed, the Government will give a bonus in the shape of a free grant of seed (sets) to families whose

members, resident on the holdings, were employed on the relief works on or before April 6. The entire cost of the grant will be borne by the Government, and is to be regarded as an additional recompense for the labour given. All the Unions to which the letter has been addressed have accepted the offer.

"THE FERN BULLETIN."—This is the name of a small quarterly pamphlet edited by W. N. CLUTE, published at Binghamton, U.S.A., and "devoted to Ferns." The first number of the sixth volume is before us, and contains the following papers:—"Four new species of *Ophioglossum*," E. G. BRITTON; "*Woodsia ilvensis*," C. F. SAUNDERS; "*Asplenium fontanum* in the West," B. D. GILBERT; "*New Isoetes*," A. A. EATON; "Development of Ferns from Spores; Botrychiums in an odd place, and Naturalisation of exotic Ferns. A recent development of *The Fern Bulletin* is the inclusion in it of four extra pages devoted to the Mosses. This department is edited by Dr. A. J. GROUT, and constitutes a decided improvement in, and attraction to the little magazine. The second number has arrived as we are going to press.

PUBLICATIONS RECEIVED.—*The Country Gentleman's Catalogue* (Eden Fisher & Co., Clement's Lane, Lombard Street). A useful annual for those to whom it is addressed, as it deals with agriculture, gardening, sport, and all other country occupations and interests. —*Investigations on the Native Vegetation of Alkali Lands*, by J. Burtt Davy. Published by the University of California, at Berkeley, Cal. —*Recent Laws against injurious Insects in North America*: together with the laws relative to foul brood, compiled by L. O. Howard. —*Bulletin No. 13*. New series. U. S. Department of Agriculture. Washington Government Printing Office. —*Some Miscellaneous Results of the Work of the Division of Entomology*, prepared under the direction of L. O. Howard, entomologist. —*Bulletin No. 10*. New series. U. S. Department of Agriculture. Washington Government Printing Office. —*The Journal of the Royal Horticultural Society*, for April, 1898. Vol. XXI, Part 3. The present volume is filled with very interesting matter concerning such subjects as manures specially adapted to the needs of Tomatoes, embodied in a communication by Mr. W. Nield; the depth in the soil at which plants occur, by Professor Oliver, with illustrations of the contractile power of roots in some kinds of plants; and a communication on hardy plant-borders, by Miss Jekyll, V.M.H., and Mr. H. S. de-Leonard, made clear by means of a series of diagrams and keys to the same. Those interested in the artificial raising of Orchids will find an abundance of observations in Mr. C. C. Hurst's paper (read on October 12, 1897), on the "Curiosities of Orchid Breeding." —*The Producers' Gazette and Settlers' Record*. Western Australia (E. S. Wigg & Son, Printers, Hay Street, Perth, W.A.)

PLANT PORTRAITS.

APPLE REINETTE DE CAUX, *Bull. d'Arboriculture*, &c., March.

BUDDLEIA VARIABILIS, *Heinsley, Revue Horticole*, March 16. A species like *B. Lindleyana* but with a denser and broader spike. The flowers are lilac. It is a native of the mountains of Ou Pé.

CALLISTEPHUS SINEAIS, *Garden*, March 26.

IBIBISCUS CAMERONI, *Garden*, April 2.

PHYDANTHERA BARBATULA, a charming little plant, difficult to grow here, but which thrives in a p. or sandy soil on which Pines grow. *Mechan's Monthly*, March.

ROSE, TEA, Mdle. Yvonne Gravier, *Garden*, March 19.

SOLANDRA GRANDIFLORA, *Garden*, March 12.

Obituary.

AIMÉ GIRARD.—We regret to announce the death of M. A. Girard, an efficient populariser of science in relation to the cultivation of the land, and a veritable benefactor to French agriculturalists, especially in reference to the cultivation of Sugar-beet and Potatoes; and the results of his investigations and experiments in these and other directions were made known throughout the civilised world. M. Girard was in his 68th year.

GHEENT QUINQUENNIAL.

NEW PLANTS.

If there was not quite so keen an interest shown in this department as on the last occasion, there was nevertheless a fine and interesting collection. The most prominent were the new plants shown by Messrs. SANDER of St. Albans and Bruges. Indeed their *Acalypha Sanderiana* was the plant of the show, and its remarkable appearance, and brilliant crimson pendulous spikes attracted universal admiration. Most of these plants are described and figured in the present *fa ne*.

Aralia Balfouriana, also shown by Messrs. SANDER, had trifoliate leaves, the ultimate segments rounded, green, with white edges. *Saintpaulia ionantha* was shown for the first time at the previous quinquennial, and was now exhibited by M. DE CONINCK, with leaves variegated with yellow. *Licuala Jeanseceyi* was shown by Messrs. SANDER. It is a Fan Palm, with deeply lobed leaves, the stalks of which are beset with hook-like spines. The same firm also showed *Ptychosperma Sanderi*, with pinnate leaves and very narrow segments, a very elegant species; and *Calamus caroli*, a pinnate-leaved twining Palm, with spreading spines. Other new plants are alluded to under various headings.

GENERAL STOVE PLANTS.

Never have above foliage plants been exhibited better, even at a Ghent show. Under various headings we have referred to some of the principal plants in this section, especially those that have a claim to be new or rare. To the class themselves, however, in which the exhibits were remarkable only by reason of the exceptional cultivation presented, we have not space to allude to in detail. One of the principal of such classes was that for twenty-five foliage plants, which was won by M. H. MILLET, of Ledeberg. The best twelve *Crotons* (large) were exhibited by the Société Horticole Gantoise. From this same establishment came the best group of twenty-five Palms; and M. J. MOENS, of Ledeberg, showed the best group of fifteen plants. The many small classes with prizes for the best example of different species of Palms were the means of bringing together such excellent specimens as Englishmen rarely see—save, of course, at Kew. The best collection of fifteen Cycads was shown by M. DE GHELLINCK DE WALLE of Ghent.

M. DURIEZ FRÈRES, of Ghent, showed an interesting collection of medium-sized specimens of no fewer than twelve species and varieties of *Asparagus*, all of them well cultivated. These were *A. compacta nana*, *A. comorensis*, *A. plumosus nana*, *A. decumbens*, *A. falcatus*, *A. medius*, *A. plumosus*, *A. p. cristatus*, *A. retrofractus arboreus*, *A. falcatus albus*, *A. tenuissimus*, and *A. Sprengeri* in fruit.

M. GROUT showed a fine plant of *Asparagus Sprengeri variegata*, the narrow phylloclades edged with silver.

THE ORCHIDS.

At the last show five years ago, the place of honour was occupied by the two memorable groups, replete with rare things, staged by the leading Belgian amateurs, M. GEORGES WASCOQUE, and M. JULES HYE-LEYSSEN, and on that occasion each competitor did his best to secure the coveted medal offered by His Majesty the King.

This time the nurserymen entered the lists, but as there were two important medals offered, the one great exhibitor entered for the King's Medal, and the other for that offered by M. le Comte de Germiny, and consequently, as in very many instances throughout the show there was no competition, the prize going to the only exhibitor. These two important groups were staged side by side in the new (inaugurated 1868) Salon, or Winter Garden, and both were admirable in every respect.

The Gold Medal offered by His Majesty the King, for the best 100 Orchids, was taken by M. VINCKE-DUJARDIN of Bruges, his group being characterised by the number of fine *Odontoglossums* which he so well cultivates. Among them we noted *O. crispum grandiflorum*, *O. c. Trianei*, *O. c. punctatisimum*, and other fine varieties of *O. crispum*; *O. excellens*, remarkably good *O. Pescatorei*, fine *O. Wilckeanum*, *O. polyanthum*, the six large and pretty *O. Scheepdaelians*, a curious intermediate variation between *O. crispum* and *O. Andersonianum*; and a number of fine hybrids of the *O. Andersonianum* class. In the background appeared the fine old *Ansellia africana*, with the brightly-coloured *Epidendrum O'Brienianum*, tall spikes of *Oncidium lamelligerum*, *O. superbicum*, *Cymbidium eburneo-Lovianum*, and other elegant varieties; and among the dwarf plants remarkable were *Cattleya Lawrenceana* superba, with petals as brilliantly coloured as the lip; *Miltonia Bleanua* nobilior of fine form; *Eulophiella Elisabethae*, the fine scarlet *Epiphrontes Veitchi*; *Cattleya Schroderae*, *C. intermedia* *Parthenia* and other fine *Cattleyas*; *Lycaste Skinneri* alba, fine *Masdevallia ignea* and *M. Lindenii*, *Oncidium spilopterum*, and numerous handsome *Cypripediums*, &c.

M. A. PEETERS, of Brussels, secured the Gold Medal offered by M. le Comte de Germiny for the best 100 Orchids, comprising the best species and varieties, with one of the most beautiful and well-arranged groups of finely-cultivated Orchids which could possibly be brought together at this season. The group was conspicuous by the number of richly-



FIG. 96.—RFTSTIO SPS.: F. W. MOORE. (SEE P. 243.)



FIG. 97.—CERATOLOBUS MICHOLITZIANA: HORT, SANDER. (SEE P. 243.)

coloured varieties which it contained, and very attractive to the eye were fine plants of *Epiphrontis Veitchii*, the bright yellow and purple of *Lælia Latona*, the violet hue of the ample labellums of the several varieties of *Zygopetalum Perrenoudii*; the varied and softer tints of the new *Phaius Norman*, *P. Norman roseus*, and *P. N. aureus*; and the rich orange colour of *Masdevallia Veitchii*, every plant being arranged to show itself effectively. In the back-ground were elegant sprays of *Oncidium sarcodes*, *O. Marshallianum*, *Lælia purpurata*, *Cymbidium Lowianum*, *Odontoglossum Hallii*, and other graceful species. And among the rare gems may be selected the pure white *Cattleya intermedia Parthenia*, the white petalled *C. Mossie Reineckiana*, the hybrid *C. Parthenia*, and its rose-tinted variety *gratissima*; *Miltonia Bleusana nobilior*, *Eulophiella Elisabethæ*, *Masdevallia Veitchii grandiflora*, *Lycaste Skinneri alba*, *Odontoglossum coronarium brevifolium*, some very fine *Cattleyas*, *Odontoglossums*, &c.

The plants in the other classes were chiefly arranged on the staging running down the centre of the old, or upper salon, and much care must have been taken both in allotting the spaces to suitable plants, and in the arrangement of the various exhibits with an edging of Ferns and other foliage plants so as to form an effective arrangement as a whole.

To Mr. WILLIAM THOMPSON, of Walton Grange, Stone, Staffordshire, belongs the honour of sustaining the credit of British Orchidists, and well did he accomplish the duty, so far as *Odontoglossums* are concerned at least, the noble plants which he staged in Class 58 (collection of thirty *Odontoglossums*) being generally admitted by the cleverest Belgian growers to be equal to anything they could ever desire to attain. The plants were large, having been successfully grown on for some years, their bulbs of great size, and plump and healthy; their foliage clean, and verdant; and their flowering grand, both as regards the size of the individual flowers, and the strength of the spikes, which were in many cases branched. The Gold Medal was awarded by the jury, *per acclamation*. Among Mr. THOMPSON'S best plants were *Odontoglossum crispum Thompsoniæ*, one of the largest and best of the typical *O. crispum*; *O. c. Annie*, a handsome flower, richly spotted with purple; *O. c. leucoglossum*, a fine rose-tinted form with white lip; a grand *O. Ruckertianum*, with two fine spikes; the fine *O. Wilckeanum concinnum*, *O. W. compactum*, and *O. W. nobilior*; a grand series of distinct forms of *O. luteo-purpureum*, including *O. l. leopardinum*, *O. l. Walteviense*, *O. l. amplissimum*, and a noble *O. l. hystrix*, with three very fine spikes. Also in the collection were a splendid *O. Roezlii album*, some fine *O. Pescatorei* vars., *O. triumphans*, *O. Coradinci expansum*, as large as ordinary *O. Wilckeanum*; *O. Roeslii majus*, a magnificent *O. Humeanum splendens*, &c.

Mr. THOMPSON also showed in class 57 (for the best *Odontoglossum*) a noble example of *Odontoglossum Hallii*, with nine spikes, and with it secured the 2nd prize, the 1st going to that enthusiastic amateur, M. METDEFENNINGEN, Boulevard du Jardin Zoologique, Ghent, who showed *Odontoglossum Madame Metdefenningen*, a charming and very distinct natural hybrid, with large and finely-formed flowers of a clear pale yellow, beautifully blotched with red-brown. Although it may be likened to a broad-petalled *O. Wilckeanum*, its origin is not easy to determine, for the flower has a slight suggestion of *O. excellens*, the plant itself being much like *O. Pescatorei*.

M. METDEFENNINGEN also secured the 1st prize (*Medaille de Vermeil encadrée*) for the best fifteen *Odontoglossums*, showing fine *O. crispum*, *O. Andersonianum*, *O. Pescatorei*, *O. Roeslii majus*, *O. odoratum album*, &c., and the 1st prize for the most beautiful *Odontoglossum crispum* (*Alexandre*), with a noble variety of the large unspotted type.

In Class 27 (*Amateurs*), (collection of fifty Orchids in the greatest variety), the Gold Medal was awarded to M. F. PAUWELS, of Antwerp, for a good collection, in which the most interesting and valuable plant was *Odontoglossum Pauwelsianum*, a very neat cream-white flower spotted with brown, the oval fringed lip seeming to suggest it as a hybrid of *O. Hunderwellianum*. In the centre of the group was a good *Cymbidium Lowianum*, and with it *Odontoglossum laeve*, *O. Uro-Skinneri*, *Vanda tricolor*, a fine *Dendrobium superbum*, *Odontoglossum Hallii* and other good *Odontoglossums*, *Vanda tricolor*, *Coryanthes macrantha*, *Lælia-Cattleya Schilleriana* (as *L. elegans*), *Cattleya citrina*, with six flowers; *Angraecum sesquipedale*, *Cypripedium villosum*, with twelve flowers; *C. Rothschildianum*, with very strong spike; *Oncidium Marshallianum*, *Phalenopsis Schilleriana*, and several other excellent examples of Orchid culture, such as a fine *Cypripedium Chamberlainianum*, *Odontoglossum Roeslii* var. *grande*, with about thirty flowers; and the fine old *O. hastilabium*, in exceptionally good condition.

Class 30 (*Nurserymen*), for the best thirty Orchids, brought two competitors, the 1st prize (Gold Medal) being taken by M. LOUIS DE SMET-DUVIVIER, of Mont St. Amand, Ghent, for a really fine stand of excellent Orchids, which formed an admirable object on the central end of the stage which they occupied in the old salon. Well elevated at the back was a grand specimen of *Cymbidium Lowianum*, with many arching spikes; with it were fine *Oncidium lamelligerum*, *O. Sarcodes*, *O. superbium*, a fine example of the violet-coloured *Odontoglossum Edwardi*, *Cymbidium eburneum*, *Lycaste Skinneri alba*, *Cattleya Mendeli*, *Ada aurantiaca*, *Odontoglossum triumphans*, *Masdevallia Harryana splendens*, *M. ignea aurantiaca*, *Miltonia vexillaria*, *Oncidium phymatophilum*, &c.

The 2nd Prize in Class 30 was secured by Mr. H. VANDER STRAETEN, of Bruges, in whose collection the *Dendrobium clavatum*, *Cypripedium Calypso*, *Cattleya Schroderi*, *Lycaste*

Skinneri alba, and the *Odontoglossum cirrhosum* were specially good.

The Williams' Memorial Medal offered for the best fifteen Orchids (amateurs) was awarded to M. METDEFENNINGEN of Ghent (*à l'unanimité*), who staged excellent examples of *Cattleya amethystoglossa*, *Vanda suavis*, *Oncidium sarcoodes*, *Odontoglossum Andersonianum*, *O. Ruckerianum*, and *Masdevallia ignea aurantiflora*.

Class 33 (for collection containing the greatest number of species, only one of each species) fell, as could be expected, to the enthusiastic amateur, M. VAN IMSCOOT of Ghent, whose collection not only receives the showy kinds, but the botanical species. As a result, the collection staged was of far greater interest to the plantsman, or to any who would stay and examine some of the lesser beauties than more showy and perhaps more striking groups. Upwards of ninety distinct species were well represented in M. Van Imscoot's group, the most striking plants being a fine specimen of the rare *Dendrobium cymbidioides*, with eleven spikes; a curious *Odontoglossum* of the crispum section, with yellow flowers, and named *O. sulphureum*; a nice plant of *Dendrobium Kingianum*, *Lycaste lasioglossa*, and other *Lycastes*, *Odontoglossum Edwardii*, *O. Grstedii*, *O. Hunnewellianum*, *Cattleya labiata Luddemanniana*, *C. Schrodere*, *Epidendrum Stamfordianum*, the rare rose-coloured *E. Cooperianum*, and other *Epidendrums*, *Cypripedium Harrisianum superbum*, *C. Sallicrii*, *Phalenopsis Boxalli*, *Selenipedium Dominicanum*, and some pretty little *Erias*, *Pholidotas*, *Masdevallias*, &c.

M. VAN IMSCOOT also secured the Medal offered for three new hybrids, with good specimens of *Masdevallia Pourbaixii*, *Epidendrum Endresio-Wallisii*, and *Cattleya Albertii* (*Loddigesii* x *superba*), a pretty hybrid, with pale pink sepals and petals, and a rich purplish lip.

In Class 34 (three Orchids of different genera remarkable for good culture and flower), M. L. D. SMET-DUVIVIER, of Mont St. Amand, Ghent, was awarded the Medal, his excellently-grown exhibits being *Oncidium sarcoodes*, with five spikes; *Odontoglossum luteo-purpureum*, with two spikes and a fine plant of *Cymbidium Lowianum superbum*.

The Classes for Single Specimens (other than the *Odontoglossums* before-mentioned), brought little competition, and the exhibits in these classes were not very remarkable, though most of them were good show-plants.

For the best *Cattleya*, the Medal was awarded to M. LANGHE-VERVAENE, for a good example of *Cattleya Schrodera*, with about twenty flowers.

For the best *Laelia*, the Medal fell to M. CHAS. MARON, Bruney, near Paris, for a good example of the fringed-lipped *L. Digbyana*.

For the best *Dendrobium*, the 1st prize went to M. DE SMET-DUVIVIER, for *Dendrobium thrysiflorum*, rather past its best.

For the best *Oncidium*, the 1st prize was secured by M. L. P. LANGHE-VERVAENE, of Brussels, with a grand example of *Oncidium sarcoodes*, which, however, was only the best of a number of others of the same species which he exhibited, and all of which had been grown for some time, and had now assumed (for the species) gigantic proportions, their spikes being about 5 feet high, and laden with flowers. A curious fact should be recorded about these plants, viz., that they were grown in ordinary pots, and potted much in the same way as the Azaleas, the compost used being the ordinary leaf-soil (*terre de Belgique*) of the Belgian Nursery. The pots are said to have but few cracks, and the leaf-soil is surfaced with sphagnum moss. Water is freely given during active growth, but very sparingly afterwards. Many *Oncidiums* are said to thrive equally well in this way, though some other Orchids are not amenable to the treatment.

Class 66 (for the best hybrid Orchid) brought a very beautiful, remarkable, and distinct plant, *Laelio-Cattleya "Henry Greenwood"* (*L.-C. Schilleriana* (*Stolzeriana*) x *Cattleya Hardyana*) exhibited by the raiser M. CHAS. MARON, Horticulteur, Rue de Montgeron, Brunoy, Paris. In habit of growth the plant resembled a very strong *Laelio-Cattleya elegans*. Its flowers, which were as large as a good *Cattleya gigas*, were quite novel in the form, especially of the showy labellum. They had white sepals and petals delicately tinted with rose; the fine lip chrome yellow in the throat, and rich purplish crimson in front. The jury, of which Mr. Jas. O'Brien was president, and M. M. Cahuzac, secretary, unanimously voted a higher award than that specified in the schedule, and a Silver-gilt Medal was given.

M. MARON also showed fourteen plants of *Cattleya L. Chaton* (*Triana* x *Lawrenceana*) like, but larger than *C. Lawrenceana*; several plants of *L.-C. intermedia-flava*, and one of the yellowish rose-tinted *L.-C. Bertha Fournier*, scarcely expanded.

In Class 68 (for the best twenty-five *Cypripediums*) the Gold Medal was secured by Ghent's favourite nurseryman, M. PYNAERT VAN GEERT, with a splendid lot of well-grown plants, most profusely flowered. In front was a plant of the pure white *Cypripedium bellatulum album*, and behind it a noble specimen of *Cypripedium Mastersianum*, with seventeen of its pretty wax-like flowers—perhaps the best specimen of its kind ever exhibited. Specially noteworthy, even where all were good, were a fine variety of *C. exul* with ten flowers, a grand *C. nitens superbum*, *C. Helene Gayot*, *C. macropterum*, *C. Doris*, fine varieties of *C. Lathamianum*, *C. Calypso*, and kindred hybrids, among which was a remarkable and showy variety named *C. Lambertianum*.

In the same section for amateurs, M. J. MOENS secured the Medal with nice specimens of *Cypripedium Niebe*, the glossy, darkly-coloured *C. Chas. Madoux*, *C. Hebe*, *C. Lecanum Albertianum*, *C. Harrisianum violaceum*, a finer *C. Sallicrii*, and other good things.

The Gold Medal offered for six *Vandas* was awarded to M.

VINOKS-DUJARDIN of Bruges, for healthy specimens of the *V. tricolor* class.

The Gold Medal for ten *Anæctochilus* and allied genera fell to M. PYNAERT VAN GEERT, who showed some remarkably fine *Anæctochilus Petola*, *A. xanthophyllus*, *A. setaceus*, *Goodyera Rolissonii*, &c.; the 2nd prize going to M. A. DALLIERE of Ledeberg, Ghent, who also showed remarkably healthy specimens of this difficult class; the *Anæctochilus Sanderianus* being specially good.

Among other exhibits, mention should be made of a fine little collection of *Odontoglossum crispum* of a remarkably good type, and excellently well grown, staged by M. A. VAN BEERLE, Chaussée d'Anvers, Ghent, and among which was a very handsome form of *O. Ruckerianum*, with large, cream-white flowers, profusely spotted with red, and with yellow margin to the petals; and also of two remarkable varieties staged with their new plants by Messrs. F. SANDER & Co., of St. Albans and Bruges. The first was the very handsome and distinct *Odontoglossum Roi Leopold*, a truly unique form, with cream-white sepals, tinged, especially on the reverse side, with rose, and decorated with clusters of rather large red brown blotches; petals rather broader, and fringed at the edge, white, clouded with clear rose, and bearing many irregularly-displayed reddish spots. The lip is narrow, elongated, fringed, and apiculate, white with a lemon-yellow crest, and a few brownish blotches and some smaller purple ones. The other novelty was *Lycaste Skinneri* Baroness Schroder, which may best be described by likening it to a *L. S. alba* of the best type, with a delicate blush-pink tint on the sepals, and a more pronounced pink-marbling on the petals, the lip being pure white, with light yellow callus.

Turning to the schedule, we can but remark on the number of classes in which there were no entries, perhaps providentially, for if a much larger proportion had entered, and there had been competition in the classes, it is difficult to say where the plants would have been placed, for the show was full enough as it was. Still, by comparison with species better represented at former shows, such as *Laelia purpurata* and other showy kinds, it seems most likely that the past long, though not hard winter may be accountable for the deficiency—indeed, some of the growers remarked that in many cases buds had been held in check by absence of sunlight, until they either failed altogether or came out crippled.

HARDY BULBOUS PLANTS.

In a competition for the best collection of 150 Hyacinths, in fifty varieties, a grand lot from Messrs. BVOET BROTHERS, Overveen, Haarlem, obtained 1st prize, an "Œuvre d'Art." All of the varieties were the most popular ones, and were shown in capital style. Seldom have we seen better developed flowers of *Czar Peter*, *Charles Dickens*, *La Grandesse*, *King of the Blues*, and others. The only new one was *Ivanhoe*, a purple-blue flower, with fine bells upon a spike of considerable length. A Gold Medal in this class was also awarded to L. VAN HOUTTE, Père, Ghent.

Messrs. BVOET BROS. were also successful in staging the best collection of 100 Hyacinths in an equal number of pots; and a Gold Medal was awarded to the second best exhibitor in the class, viz., M. K. J. KUYCK, of Billegom.

A collection of 250 Hyacinths, in twenty-five varieties, from Mr. H. J. KUYCK, Hillegom, Holland, staged with a large mirror at the back, was imposing. Ten bulbs of one variety were in each pan. Most of the varieties were familiar ones in England. Yellow was represented by the variety *Ball of Gold*, a large, densely-flowered one of moderate colour. Fine white varieties, and a very pale flesh, were included in the group.

The Société Anonyme, L. VAN HOUTTE, Père, had 1st prizes for collections of fifty single-flowered varieties, and an equal number of double-flowering varieties.

A collection of 300 Tulips, single-flowered, in thirty varieties, was remarked from Mr. H. J. KUYCK, of Hillegom. Its yellow varieties included *Yellow Prince*, *Geldfinch*, *King of the Yellows*, *Prince de Ligne*, and *Mon. Trésor*, the last-named being the largest flowered. Thomas Moore, a kind of orange-red, was as distinct as any.

The collection of 300 double-flowering Tulips, from Mr. H. J. KUYCK, in not fewer than thirty varieties, were of good quality. There was little new to remark in the varieties, but they had been cultivated well, and were tastefully presented. From pure white to darkest crimson selfs, and variously coloured *Tournevels*, including an effective orange-flowered variety of uncommon tint, also feathered and flamed varieties of double Tulips, the collection was a satisfactory and representative one.

M. H. KRELAGE, of Haarlem, exhibited a collection of fifty plants of breeder or *Darwin Tulips*. Some of these were upwards of 3 feet in height, the flowers at the same were fine.

Two collections of fifty pots of *Narcissus*, in as many varieties, exclusive of the *Polyanthus* and *Jonquil* section, were commendable, by far the better exhibit being that from Mr. H. J. KUYCK, Hillegom, Holland; but it was surprising that both collections lacked *Glory of Leyden*, *Weardale Perfection*, and others of the best and newest of the trumpet section.

A collection of twenty-four pots of *Polyanthus Narcissus* was a remarkably good collection, also from Mr. H. J. KUYCK.

HARDY PERENNIAL PLANTS.

The classes in this section numbered nineteen, but only four of these obtained entries. The quality of the exhibits was not so good as we are accustomed to see in this country.

A collection of twenty plants of *Astilbe* (*Spiraea*) *astilboides* from M. A. DE MEYER, Gendbrugge, was the most noticeable

HARDY ORNAMENTAL PLANTS.

M. E. BEDINGHAUS was awarded 1st prizes in the four principal classes in this section. He included in his groups specimens of *Skimmia oblata variegata*, and the green type, *Pernettya mucronata* (large plant, but poorly berried), the small-leaved *Ilex Fortunei* and *I. F. variegata*, *Skimmia japonica* (well berried), rather poor specimens of the variegated *Privet*, various *Ivies*, and other plants; but nothing novel was remarked, nor were the specimens better than we see in England. His *Euonymuses* in many instances were well berried, and the foliage was clean and well coloured, winning prizes for twelve plants and for six plants.

The best-berried *Aucubas*, however, were shown by M. F. BURVENICH, Père, of Gendbrugge, near Ghent, several of these plants being attractive specimens, and winning prizes for fifteen plants and for six plants—in the latter class being judged from the standpoint of cultivation.

Ivies and *Hollies* were shown in groups. The best collection of twenty *Hollies* was from Soc. Anonyme L. VAN HOUTTE, Père; and the best group of fifteen *Ivies* by M. BEDINGHAUS. Most of the specimens in both genera were standards, and of fine size and form.

Skimmia japonica was well berried in a group of twenty-five plants, from M. F. COLLUMBIEN, of Ghent; and M. B. SPAE exhibited a nice group of twelve plants.

M. F. BURVENICH obtained a Gold Medal for a group of seventy-five evergreen trees, and there were many other classes for *Agaves*, *Yuccas*, *Furcraeas*, *Cactuses*, *Conifers*, &c.

SOFT-WOODED AND HERBACEOUS PLANTS.

The best collection of twenty-five plants of *Primula obovata* were staged by MM. VILMORIN, ANDRIEUX & Co., Paris, who excelled M. L. de Beck of Ghent. MM. Vilmorin showed strong plants of the white and tinted-flowered varieties.

Of single-flowered zonal *Pelargoniums* the best collections of twenty-five plants were those from M. KERVEN, Oudt, MOOREGHEM of Mariakerke, Ghent (amateur), and from M. L. DE BECK, nurseryman, Ghent.

A collection of double-flowered varieties was shown by M. J. B. TILLIEN, Beitsfort. The variegated foliage section was represented only moderately.

Cinerarias were exhibited in quality about equal to the English average; and in the Amateurs' Class for forty plants, M. E. FIJERENS, the secretary to the society, was awarded a medal, obtaining similar fortune for twenty plants. Of the nurserymen, MM. VILMORIN, ANDRIEUX & Co. won for twenty plants, but for a group of forty plants they were beaten by M. A. DE VRIESERE-REMENS, Ghent. The last-named exhibitor had a collection of thirty plants of *Mignonette* of satisfactory quality.

Herbaceous *Calceolarias* were not equal to our own collections at the Temple Show, but the Belgian plants have to be fit for exhibition six weeks earlier than the Temple show is usually held.

A collection of fifty plants from Chevalier HYNDERICK DE TREULEGOET (amateur) obtained a Medal; and the best plants from a nurseryman were shown by MM. VILMORIN, ANDRIEUX & Co.

GREENHOUSE BULBOUS PLANTS.

This section included the *Hippeastrums*, *Cyclamens*, *Begonias*, *Gloxinias*, &c. The best *Hippeastrums* were from England.

In the competitive classes, Messrs. R. P. KER & SONS, Aighurst Nurseries, Liverpool, won in every case, though in some of the classes there were several competitors. The firm had collections of seventy-five plants, of forty plants, of twelve plants (new varieties), of six plants (new varieties), and of a new plant obtained from seed, and not previously exhibited before this society. Messrs. Ker's strain is well known in England, and instead of particularising varieties, we may say that the plants were the subjects of general praise, and that the principal prize (*Work of Art*) was awarded unanimously, and with commendations by the jury.

Mr. H. KRELAGE exhibited in the class for forty plants, and won a Gold Medal.

Cyclamens were exhibited from one establishment only, and M. L. P. DE LANGHE-VERVAINE, 150, Rue de Constantinople, Saint Gilles, Bruxelles, was awarded 1st prize for fifty plants in flower, and for twenty-five plants; in this latter class a Medal, offered by the Trustees of the Williams' Memorial Fund was also won. All of the plants belonged to the "Papilio" strain, recently exhibited at the Drill Hall, and illustrated in these columns. Several rose-coloured forms with narrow margins of straw-colour to each segment, were curious.

There was one collection of *Gloxinias* shown by Mr. KECELIJAN, of Namur, of very remarkable quality, most of the flowers being nearly 5 inches across, with very wide throats. In this strain the flowers were for the greater part spotted ones. Beyond this exhibit, *Gloxinias* call for little comment. They were of average quality only.

A collection of thirty plants of *G. crassifolia* came from the establishment of L. VAN HOUTTE, Senior, Gendbrugge; and in the *C. punctata* section, M. A. VAN LAETHEN won for thirty plants; and the same firm had the best collection of twenty plants to name.

The date was evidently too early for the perfect exhibition of tuberous-rooted *Begonias*. There were only two groups, and the plants, though in flower, were but little developed. These exhibits were from the nurseries of L. VAN HOUTTE, Senior.

STOVE AND GREENHOUSE FLOWERING PLANTS.

Collection of twenty-five plants for the stove and greenhouse, to be specimens of good culture. Cape and New Holland plants predominated in this class, and the specimens in many instances were not only remarkable for their size and healthy growth, but also for the profusion of bloom. Freedom from overtraining was also notable. Several competed here; the following were the two best collections.

The 1st prize was awarded to M. EMILE DE COCK, Ghent, but the opinion of many who are plant-growers inclined to question its correctness from many points. This group was somewhat uneven in character and the arrangement scarcely so effective, the finest of the large specimens were *Polygala Dalmaisiana*, extra fine; *Rhododendron Gibsoni*, well-flowered and effective; *Metrosideros semperflorens*, a tall standard; *Sparmannia africana*, a dense bush well flowered; *Camellia Lavinia Maggi*, with fine blooms in quantity. Of the smaller, the best were *Acacia grandis*, A. verticillata, *Azalea linearifolia*, very singular, covered with its mauve-pink flowers; *Boronia elatior*; *Aphelaxis macrantha rosea*, a good plant, and *Medinilla magnifica*; and a pleasing dwarf standard of *Acacia cordata*. The 2nd prize went to M. E. BEDINGHAUS, Ghent, who should have been placed 1st, as his plants betokened higher cultivation, freshness, and were finer as specimen plants. With one exception this collection was composed of greenhouse plants only, and it was well worthy of the best days of these plants in England. The largest and finest were *Acacia longifolia*, of pyramidal form, and about 9 feet in height; *A. verticillata*, a denser bush; *A. armata robusta*, extra fine—a mass of flower; *A. Drummondii*, a lovely example of medium size; *A. gracilis*, deep golden colour—extra good; *Diosma ericoides*, large, studded with its small white flowers; *Cytisus racemosus*, large, densely flowered; *Eriostemon floribundum*, a fine specimen, and very effective; and the rarely seen *Brachysema acuminata*. The smaller plants of this group were equally notable for their profusion of flower. The best were *Polygala Dalmaisiana*, a pretty standard; *Leptospermum scoparium*, *Eriostemon linifolium*, *Boronia heterophylla*, *Adenandra fragrans*, and *Libonia floribunda*, all models of good culture; of special note, too, were *Metrosideros semperflorens*, richly coloured; *Darwinia tulipifera*, *Correa speciosa*, and *Anthurium Scherzerianum*. An immense *Azalea indica* Alfred Edmond, some 6 feet across, in this group was profusely flowered, but it betokened decreased vigour. A collection of smaller plants in this class included the now rarely-seen *Kennedya purpurea* and *Boronia Mollini*, a bluish-pink variety.

For a collection of fifteen stove and greenhouse plants the competition was again good, but the plants were somewhat smaller. To M. BEDINGHAUS the 1st prize was awarded. This collection comprised a fine pyramidal plant of *Acacia longifolia* and smaller ones of *A. Drummondii* and *A. verticillata* well flowered, a large *Azalea Marie Van Houtte*, and beautiful, although rather small, example of *Chorozema cordata splendens*, and was an even well-arranged group of plants.

Another good collection came from M. VAN DRIESCH, Ghent. Here the best examples consisted of *Erica encullata* (like *E. melanthera*, but much larger in the bells, a densely flowered-plant of medium size; a good standard of *Leptospermum bullatum*, and another of *Rhododendron fragrantissimum* bearing large flowers, *Clivia miniata*, and *Erica arborea* were to be noted here. The 2nd prize was, however, awarded to M. EMILE DE COCK, who had possibly a better collection, his best being *Diosma alba*, *Acacia grandis*, *Boronia elatior*, *Azalea Countess de Flandre*, and *Acacia paradoxa*, extra good.

For twenty plants of Cliveias (nurserymen) some good exhibits were to be seen. The 1st prize was awarded to M. CHARLES VERMEIRE, Gendbrugge, Ghent, and comprised a specially fine collection, all the varieties being up-to-date, the best were *Roi Léopold* (extra bright), *John Laing*, *Mme. Jules de Cock*, *Ch. Vermeire*, *Princess Clementine*, and *Chevalier Heyndrickx*, a brilliant variety. The 2nd prize went to M. B. FORTIE, Ghent, the trustees here were in several cases extra good, the finest varieties being *Madame Arthur de Smet* and *Madame Victor Charon*.

For a collection of twenty plants of *Boronia elatior*, the 1st prize was awarded to the preceding exhibitor. This exhibit comprised nineteen plants of medium size, about 12 inches by 18 inches, very dense and compact, and profusely flowered, and another large and extra fine specimen, a model of good culture. The 2nd prize was awarded to M. E. COLUMBIEN DE MEIRELBEKE, whose plants were not so much advanced, but otherwise well grown and healthy.

For twelve standards with stems of about 2 feet high of *Boronia elatior*, the 1st prize was awarded to M. E. COLUMBIEN for a set of excellent plants, the heads about 2 feet through, but not sufficiently advanced to be effective.

For a pair of specimen Orange trees in fruit, the 1st prize was awarded to M. VAN DE WYNCKEL, and the 2nd to M. GULINCK, each collection being well fruited.

Two collections of twenty-five Orange trees in pots were staged, both alike remarkable for profusion of fruit and healthy foliage. The 1st prize was awarded to Mons. CHAS. VAN DE WYNCKEL, Ghent, who had the largest plants, bearing both fruits and flowers, and quite in character with the Orange. The 2nd prize went to Mons. EMILE SOSSEY, Mont St. Amand, Ghent; these had their fruits in closer compass, but were void of flowers, but very showy.

For thirty Cape and New Holland plants (nurserymen), M. E. COLUMBIEN, Ghent, took the 1st prize, the group consisted of medium-sized plants of *Boronia megastigma*, *Acacia paradoxa*, *Polygala Dalmaisiana*, *Boronia Mollini*, *B. heterophylla*, *Correa speciosa*, and other species.

For a collection of ten Cape and New Holland plants, M. BEDINGHAUS was awarded the 1st prize, being the only exhibitor. His finest plants were large specimens of *Acacia verticillata*, *A. longifolia*, *A. paradoxa*, *Polygala Dalmaisiana*, and *Leptospermum scoparium*.

For a collection of thirty plants of Cape and New Holland subjects (amateurs only) M. BEDINGHAUS was awarded the 1st prize (the only one awarded), the group consisted of medium-sized examples, all well flowered, the best being a grand plant of *Clinanthus magnificus*, a good *Acacia longifolia*, *Erica mediterranea*, *Acacia paradoxa*, and a pretty plant of *Pimelea spectabilis*.

For the best *Polygala*, the 1st prize was awarded to a standard example of *P. Dalmaisiana*, from M. BEDINGHAUS.

For twenty Cape and New Holland plants, the 1st prize was awarded to the Comtesse DE KERCHOVE, who again was the only prize-winner. This collection was of high-class quality, the best being *Acacia Drummondii*, *Choisya ternata*, *Acacia Latrobei*, a lovely variety, very graceful; *Diosma cordata*, and *Cytisus racemosus*. The same exhibitor was 1st also for the best specimen of *Eriostemon*, with *E. floribunda*—a shapely specimen.

For six specimen Cliveias, the 1st prize was awarded to M. BAUMANN, of Ghent, whose plants were specially fine, bearing large trusses of brilliant colour, with extra good foliage—a fine lot of plants; and the 2nd to Madame V. SNOECK, Gendbrugge, whose plants averaged about five spikes to each plant, bright and showy.

For twenty greenhouse *Rhododendrons* (Javanese and Himalayan forms), the 1st prize went to M. BAUMANN, whose plants made a fine display, very extra-well flowered. The best were *R. Dalhousieanum*, *R. fragrantissimum*, *R. roseum odoratum*, *R. Gibsoni*, and *R. Aucklandi*.

For six *Cytisus racemosus*, the 1st prize was awarded to M. DE COCK of Meirelbeke, who exhibited tall standards, with dense heads, well flowered.

For twenty Cape and New Holland plants (nurserymen), M. JULES DE COCK, Ledeberg, Ghent, was a good 1st with an even and well-grown lot of plants, the best were *Acacia verticillata*, *A. paradoxa*, and *A. spiralis*, *Boronia polygalifolia* (a distinct variety), *Erica encullata*, and *Azalea dianthiflora*, a novel and distinct plant. The 2nd prize went to M. DE SAEGER, Ghent, his best being *Boronia elatior*, *Polygala grandiflora*, *Acacia linearis*, and *Sparmannia africana*.

For a specimen *Sparmannia*, M. A. DE VRIESERE-REMENS, Ghent, was 1st with a large standard, well flowered.

For *Choisya ternata*, M. COLUMBIEN was 1st, his plants being compact and well-flowered, a pretty lot.

With an *Acacia* (specimen) the 1st prize was awarded to M. VERVAEKE-VERVAERT for *A. spiralis*, a well-flowered pyramid; and the 2nd to M. C. DE SOORE, Meirelbeke, for a fine dense plant *A. paradoxa*.

For a specimen of *Metrosideros semperflorens*, M. L. BECKELAERS, of Antwerp, was 1st, with a splendid specimen, most profusely flowered, being compact and very healthy, and some 4 to 5 feet through. This plant was one of the most novel and distinct specimens in the exhibition.

For the finest specimen of *Boronia elatior*, a most remarkable plant was exhibited, in every sense a perfect specimen, some 3½ feet high from the tub, and 4 feet through, being one mass of flower. This was shown by M. TH. PIENS, of Melle, and well deserved the 1st prize awarded.

For a specimen *Rhododendron* (hardy type), M. EMILE DE COCK was 1st with a dense, well-flowered plant of *Marie Van Houtte*.

For forty *Rhododendrons* (hardy), large bush-plants, the 1st prize was awarded to ED. PYNARET VAN GEEAT, Ghent, whose group made a fine display. The best were *Sir George Whitworth*, *Madame Wagner*, *1. Fiala*, *Notabilia* (corise colour, distinct), and *Prince Camille de Rohan*; also pretty plants of *Cynthia*.

For twenty-five plants, M. B. FORTIE was 1st with medium-sized plants: the best were *Madame Carvalho* (pure white), *Madame Wagner*, *Comte de Kerchove*, *Cynthia*, *William Austin*, *Doncaster*, *Lord John Broughton*, and *Prince Camille de Rohan*.

In a class for 100 Roses in pots, that number of standards were staged (this style meets with favour evidently on the Continent). The only competitor in this class was M. VAN DER HAEGHEN DE NÈVE, who staged a very neat group of clean fresh-looking plants, which included several of the best Teas, as *Elise Heymann*, *Charles Lomburg*, *Etoile de Lyon*, and others.

A class for the finest lot of *Maréchal Niel* Roses in pots again produced standards only. These came from the same exhibitor as the preceding, and were first rate, several being with large specimen heads and the flowers of excellent quality.

LILACS.—For ten Lilacs, double-flowered, M. LEMOINE ET FILS, Nancy, was 1st, with small plants. The best was *Madame Casimir Périer* (white), *Charles Joly* (lilac), and *Abel Carrière* (pale lilac).

For a group of Lilac *Marie Legrange*, M. DE BOCK was 1st, the plants being pure in colour and freely flowered. The last-named exhibitor was also 1st for a collection of ten plants, single varieties, the best being *Charles X.*, *Marie Legrange*, and *Virginalis*.

For collections of forty plants in or out of flower three remarkable groups were arranged, the prizes being given in memory of Mr. Louis Van Houtte, Père. The decision of the judges as regards the 1st and 2nd prizes was, however, decidedly open to criticism. The 1st prize was awarded to the Société Horticole Gantoise, Ghent, whose plants were bright, clean, and effective in arrangement; it consisted, however, of several soft plants, which, however effective, should not carry too much weight. The finest plants here

were those of *Licuala grandis*, an immense plant, in fine health; a large one of *Philodendron corsianum*, another of *Anthurium Veitchii*, well developed; *Nephtytis picturata*, extra good in colour and growth; *A. crystallinum*, a pretty plant; *Phenix Roebelinii*, quite a specimen plant; *Phyllotantium Lindenii*, in good character; *Dieffenbachia nobilis* and *D. Fournieri*, both well coloured; *Spathiphyllum picturatum*, *Dracaena Godseffiana*, *D. Sanderi*, and *Lea amabilis*, all neat, well-grown plants of medium size; a fine plant of *Cyanophyllum magnificum*, and another of *Heliconia illustris*; and three good Orchids, *Oncidium sarcodes*, *Cypripedium villosum*, and *Masdevallia Veitchii*.

From Messrs. ALBERT RIGOUTS, Meirelbeke, came a group which consisted of many extra fine specimens, which, by reason of the narrow pathway in front of the group, could not be seen to such good advantage. These were awarded the 2nd prize, in our opinion they were amply worth a 1st prize: the central plant was an immense example of *Zamia Altensteini*, flanked by fine plants of *Cocos Weddelliana* and *Verschaffeltia splendida* with an unusual number of leaves, and backed up by *Crotons Williamsii* and *C. Queen Victoria*, *Dieffenbachia imperialis nobilis*, extra fine; *Anthurium Hookeri*, *Dichorisandra argentea*, *Schismatoglottis Roebelinii*, *Polypodium difforme macrophylla*, *Alocasia Thibautiana* and *Cyanophyllum magnificum* were all excellent plants; *Phyllotantium magnificum*, exceedingly fine and well-coloured; *Vriecia Moensii* and *Phenix Roebelinii* were all unique plants, so also were *Dracaena Sanderi* and *Heliconia illustris*. Three good Orchids, all better than those in the 1st prize were staged here, viz., *Oncidium ampliatum majus*, *Cymbidium Lowianum*, and *Odontoglossum luteo-purpureum*; there was also a grand plant, finely-flowered, of *Erica Cavendishii*, with quite a gem in *Anectochilus petala*. The 3rd prize was awarded to M. L. VAN HOUTTE, Père, amongst which were fine plants of *Erica Cavendishii* and *Pimelea spectabilis*, *Cymbidium Lowianum*, *Dracaena Godseffiana*, *Croton Warreni*, and *Anthurium Veitchii*; it contained, however, some eight or ten small plants, which detracted from the imposing effect that otherwise might have been secured.

For twenty plants in a smaller but corresponding class, a good collection was staged by M. G. VANDEN AEELE of medium-sized plants, the best being *Anthurium Veitchii*, *Philodendron corsianum*, *Dracaena Sanderi*, *Heliconia illustris*, and *Cymbidium Lowianum*. M. RIGOUTS also showed in this class, his best examples being *Curculigo recurvata variegata*, *Dieffenbachia Leemanni*, *Nephtytis picturata*, and *Aglaonema costata splendens*.

For twelve dwarf, tusby plants, scarcely in flower.

Streptitza regia, of which four plants were to be shown were a novel feature, having several of their curious yellow and blue flowers. The 1st prize was awarded to M. GUSTAVE BOTELBERGE, Melle-lez-G. nd.

COOL GREENHOUSE PLANTS.

The 1st pair of *Dracaenas* (Cordylines), remarkable for culture and development, were two plants of *D. Douceti*; these were quite unique plants, being specially well coloured; these came from M. P. PÉRÉ.

The same exhibitor also took the 1st prize for a pair of the same variety in another class, being almost as good as the preceding exhibit.

In a class specially for *D. Douceti*, M. G. GYSELINCK was 1st with a pair of perfect specimens, well clothed with luxuriant foliage. M. J. DE COSTER came in a good 2nd in this class, only lacking colour to have pressed the 1st prize pair very close.

For a pair of *Dracaena australis aureo-lineata*, another grand pair of plants was staged, with very broad and massive foliage down to the tub; these were shown by M. G. GYSELINCK. The 2nd prize in this class went to MM. HENRI LUTPENS & Co., Moerbeke, for a smaller pair.

For a collection of six plants of *Dracaenas* (Cordylines), variegated forms, the 1st prize was awarded to M. P. PÉRÉ for *D. Douceti*, in which there were distinct variations of marking and habit.

With *Phormium tenax variegata*, M. VERCAUTEREN was 1st, the plant well furnished with foliage.

For six plants of *Phormiums* in specimens, the 1st prize was awarded to M. JULES DE COCK, who had *P. atropurpureum*, *P. atropurpureum striatum* (distinctly fine), *P. versicolor*, a dwarf variegated form, *P. Veitchii*, erect in growth, and freely variegated; *P. Colensoi*, and *P. tenax variegata*, the last being severely trimmed.

With a pair of *Phormium tenax*, M. J. DE SAEGER was 1st, the plants extra large and bushy, being really tubful of plants bedded out.

For three plants with fine foliage for a cool-house, the 1st prize was awarded to M. VOOTMANN, Ghent, with *Agave americana*, *Phenix tenuis*, and *Phormium Colensoi* variegatum, the latter a specially fine example.

For twenty-five plants for the cool-house with variegated foliage, M. ADOLPHE DE MEYER, Gendbrugge-lez-Gand, was 1st, his exhibit consisting of really useful plants suitable for the purpose. The best were *Dracaena Douceti*, variegated *Phormiums* and *Elaeagnus*, *Nerium Oleander variegatum*, *Ligularia Kämpferi*, and *Aspidistra elatior variegata*, with a very pretty example of *Rhodola japonica fol. aur. var.* M. JULES DE COCK was 2nd in this class, with good plants of *Phormiums*, *Euonymus*, *Ivies*, variegated *Orange*, &c., all being well grown.

For twelve varieties of Bamboos the 1st prize was awarded to M. JULES DE COCK, for tall plants chiefly, but no real novelty was apparent, the best example being of *B. aurea*.

For a collection of eight ornamental foliage plants, M.

GEORGE'S FRETIN was 1st with well-grown examples, amongst which were *Rhopala corcovadense* and *Cocos insigne*.

For a collection of twelve ornamental plants that can be used for the out-door garden during the summer, M. BEDINGHAUS was easily first with grand examples, the finest being *Doranthus Palmeri*, a splendid plant; *Dasyllirion longifolium* also extra good; *Eleagnus reflexa marginata*, a huge plant of dense growth; *Phoridium tenax atropurpureum*, a huge plant; *Phoenix tenuis*, equally fine; and *Yucca aloifolia quadrifida*; with good plants also of *Phoridium tenax variegata*, *Brahea Roezli*, with glaucous and *Dracena indivisa lentiginosa*, with coppery foliage.

For the largest collection of greenhouse hard-wooded plants, which were not in culture in Europe on January 1, 1893, outside of Botanic Gardens, the following exhibit did not strictly comply with the foregoing terms—at least, not so far as British gardens are concerned. M. BEDINGHAUS was the only exhibitor, this collection being staged in one of the glass erections in the grounds. It consisted of half and quarter specimens, with some small ones, being an exhibit of special interest. The most noticeable were *Erica affine*, *Diosma ambigua*, *Hibbertia volubilis* (very distinct, flowers yellow), *Erica imbricata*, *E. peroluta alba*, *Tieria Smithi* (*Eriostemon*-like in flower and growth), *Tremandra verticillata*, and *Acacia cordata*.

For a collection of twenty Cape and New Holland plants in pots not exceeding 6 inches in diameter, to be well flowered, the 1st prize was awarded also to M. BEDINGHAUS, who complied with the terms, and won easily, his best plants being *Acacia linearis*, *Erica Cavendishi*, *E. ventricosa coccinea minor*, *Cytisus scoparius Andreanus*, *Leptospermum bullatum*, *Boronia serrulata*, *B. elatior* (very fine, a dense miniature standard), *Polygala grandiflora*, *Epacris miniata splendens*, *Acacia cordata*, *Chorozema cordatum splendens*, and *Grevillea Priessi*. This exhibit was of special interest, as an example of the value of these plants when well managed.

Specimen cool-house Palms. For a pair of *Phoenix tenuis* of large size the 1st prize was awarded to M. DE GHELINCK DE WALLE, these plants were each about 20 feet through by 16 feet in height, and most dense in leafage; the 2nd was awarded to M. D. J. KUYCK, of Ghent, who had smaller specimens. The finest specimen of *Chamaerops humilis* was also from M. GHELINCK DE WALLE, a well-grown tall plant.

For a pair of *Dracena* (*Cordylina*) *lineata*, two fine examples, from M. H. BERT, were placed 1st, these were very dwarf and dense in foliage.

For a pair of large specimen Days, the 1st prize went to M. L. FRELIN DE MEIRELBEKE, for an immense pair of plants with large dense heads.

PALMS.

Large specimens of most of the well-known Palms and a considerable number of small plants of the rarer species in cultivation were prominent in various positions. The gigantic plants of *Kentia*, *Livistona*, *Cocos*, *Pritchardia*, and *Rhapis* were such as only Ghent can produce at an exhibition. The rarer species were *Phoenix Robelini*, a Palm of exceptional elegance, which will become very popular, if only a quantity of seeds of it can be had. *Versaffeltia splendens*, in the collection of M. RIQOUTS, bearing seven grand leaves on a stem 6 feet high; *Stevensonia grandiflora*, 12 feet high, with leaves 10 feet by 6 feet; *Astrocaryum mexicanum*, with a grand head 20 feet through, on a stem 8 feet high; *Ptychophaea angusta*, fully 6 feet high, and as elegant as *Cocos Weddelliana*; *Cocos* (*Glaziova*) *insignis*, very handsome examples; *Ceroxylon andicola*, the true Wax-palm, a beautiful specimen, with leaves 10 feet long; *Pritchardia Gaudichaudi*, *Brahea dulcis*, *Livistona brachypoda*, a distinct plant, after the style of *L. sinensis*, but with leaf-stalks so shortened as to cause the blades to crowd on to each other; *Corypha nermis Lauchena* has longer petioles than the type, and they are purplish at the base; *Cerastolobus concolor*, a plant 4 feet high, with bright green leaves, *Caryota-like* pinnae and brown spines; *Licuala peltata*, several fine plants, labelled L. Doctor Oxley; *Wallichia oblongifolia*, *Cocos nucifera*, *Brahea havapensis*, looked suspiciously like *B. dulcis*.

The plants shown as new Palms comprised a number of strikingly distinct and promising introductions, for most of which horticulture is indebted to Messrs. F. SANDER & Co. So far as new plants are concerned, the Palms were a long way in front of every other family. Some of them are described on p. 241. Their names are *Licuala Leopoldii*, a distinct little species with small, circular leaf-blades, divided into spoke-like segments; *Kentia Warteliana*, and *K. Karsteniana* (probably *Ptychosperma*); *Areca Ilsemani*, *Licuala Jeanneneyi*, *Rhopaloblaste singaporensis*, *Lindospadix Petrickiana*, *Calamus Laucheanus*, and C. Alberti. Variegated forms of *Livistona sinensis*, *Kentia Belmoreana*, and *K. Forsteriana* were shown, and won admiration, but it is unlikely that they will ever become abundant or favourites, the variegation either dying off soon, or changing to an unattractive hue.

CYCADS.

Numerous plants of Cycads, *Macrozamia*, *Encephalartos*, and other genera of Cycadeae formed a prominent feature of the exhibition, as, indeed, has been the case at every Quinquennial. Many of the specimens were of large size, and some quite exceptional. They were in good health, and remarkable for the small amount of the root-space afforded them. The names used were confusing to those who know these plants by the Kew name. *Zamia* was used for almost all the genera, even Cycas being called *Zamia* in some cases. However, the plants were there to speak to the skilful culture of the Belgian growers; their names can be righted

easily. Prizes were offered for the best of fifteen Cycads, eight Cycads, and seven other classes.

The most striking of the plants shown were *Cycas siamensis*, *Encephalartos Hildebrandtii*, *E. tridentata*, *E. Lehmanni* (shown in one group as *E. Perowskiana*), *E. Altensteini*, *E. caffra*, and *E. Ghellinckii* (shown as a new Cycad, and named *Cycas Spelunceae*). *Macrozamia* were represented by some magnificent specimens. M. DENISONI, with a stem 5 feet high, carrying a fine lead of leaves, was exhibited as a new species of *Cycas* under the name of C. Shepherdii, from Tonkin! The serrated form of *Bowenia spectabilis* was represented by a many-leaved plant. What looked like a new species of *Cycas* was a small plant said to have come from Tonkin, and shown by the Société Anonyme Horticole, Ghent. It has the habit and general outlines of C. circinalis, but differs from it and other Cycads in the rigidity of its leaflets, which were almost as stiff as those of *Dioon*.

AROIDS.

There were many Aroids shown, both in the miscellaneous groups and in special classes. Few plants lend themselves better to the quick formation of large specimens than the *Dieffenbachias*, *Alcasias*, *Philodendrons*, *Caladiums*, &c.; consequently, they are largely grown for exhibition. Such plants as *Nepenthes picturata*, of which there were several specimens 6 feet across and 3 feet high; *Dieffenbachia Jenmani*, the decorative character of which is never so well revealed as it was by some big plants in several groups; *Anthurium Scherzerianum*, in great numbers, showing wide range both in size and shape of spathe, as well as in colour, the latter ranging from deep crimson to pure white, through salmon-pink, rose-pink, and lavender—even yellow was represented in one called *Vervaeianum*. The variety with many small spathes springing from the spadix, and also one with a pair of equal-sized spathes to each spadix, were shown in several groups. The Ghent nurserymen have devoted considerable attention to this plant, which now shows a very striking range of forms, all the result of selection and inter-crossing of varieties for it has not yet been crossed with any other species. *Alcasias* were numerous, both as regards plants and varieties. M. DE SMET DUVIVIER showed a fine collection, which included a form of *A. Sanderiana* called *Gandavensis*, and peculiar in being of a rich metallic-purple; and *A. Kerchovi*, *A. Pucciniana*, *H. Watsoniana*, *A. Lowii*, and *A. argyrea* were especially good. One called *A. plumbea* has large dark green crinkled leaves, with purplish petioles. Messrs. SANDER & Co. showed a new one under the name of *A. Wavriniana* (see p. 243). The largest and most striking Aroid shown was a specimen of *Anthurium Hookeriana*, which was like a huge Lettuce, 10 feet across, the oblong leaves being 6 feet by 2 feet. *Spathiphyllum picturatum* has large mottled leaves, and is more like a *Dieffenbachia*. *Philodendron Martinetti* is a new plant, with large dark green sagittate leaves, dark green above, purplish below. D. Pynaerti is also a likely plant for large stoves, pillars, and walls. *Dieffenbachia Kerchoviana* is a new plant, after the style of P. Jenmani, but with leaves four times as large, and the spots confluent. *Philodendron triumphans*, shown by M. DE SMET-DUVIVIER, is like P. Carderi, differing mainly in being a stronger grower, with leaves twice as large. It is one of the best of the genus. M. ALBERT RIQOUTS also showed a fine collection of moderate sized plants, but all the specimens were well grown.

BROMELIADS.

The collections of Bromeliaceae were as large as is usual at continental exhibitions. Many of the plants were grand examples of culture; the finish they bore as regards leafiness, colour, and in some cases fine flowers, being also exemplary. The giant of the family was a huge specimen of *Tillandsia (Vriesia) regina*, shown as V. Bloki. It was as high as a man, and was in flower. T. Moensiana, evidently a near ally of T. regina, was represented by a plant 5 feet high, with rigid channelled leaves, 4 inches broad at the base, tapering gradually to the apex, and coloured cream-yellow, with green margins. T. Martelli is a variety or near ally of T. zebрина, differing in its narrower leaves, and in their being whitish about the base; the flowers were bright red. *Nidularium amazonicum Treyerianum* is a beautiful new plant, which delighted the hearts of lovers of Bromeliads. The upper surface of the leaves is yellow, with green stripes, whilst the under side is of a rich crimson, and green below. It was exhibited by M. DUFRAT, of Bordeaux. *Streptocalyx Vallerandi*, a Pineapple-like plant, with a spike of bright pink flowers, and *Nidularium Makoyanum*, with leaves variegated as in *Dracena Lindenii*, are also worthy of special mention. MM. DUVAL ET FILS showed a fine collection of Bromeliads, including specimens of *Vriesia Pohlmanni* ×, a cross between V. gloriosa and V. Van Geerti. The plants were dwarf with flat spatula-like spikes of rich orange-scarlet bracts. M. ALBERT RIQOUTS also showed in this class.

FERNS.

Tree-Ferns 20 feet high with enormous heads of fronds formed a conspicuous feature in the large annexe, other groups owing their attractiveness largely to big specimens of such sorts as *Polypodiums*, *Gleichenias*, *Angiopteris*, *Marattias* &c. The most striking Fern among the new plants was one called *Polypodium difforme macrophyllum*, shown by Mr. RIQOUTS, which promises to be a first-rate plant for large houses, its noble pinnate fronds suggesting a Cycad, and its colour a soft moss-green. The fronds measured 5 feet in length, and the pinnae 9 inches by 2 inches, and markedly dentate. *Acrostichum Lindenii* is a rare plant with the habit of *Adiantum reniforme*, but shorter in leaf-stalk, the

kidney-shaped fronds being 3 inches across. The variegated *Adiantum Claesianum* was conspicuous among the plants from M. LINDEN. A plant shown as *Marattia sorbifolia*, is only *Angiopteris evecta*. *Pteris Drinkwateri*, now recognised in England as one of the best of all Ferns for decorative work, has also found admirers in Belgium. A large plant of *Lycopodium squarrosum* was shown in a group of specimen stove-plants.

MARANTAS, ETC.

The Belgian horticulturists pay more attention to Marantas, Calatheas, and their allies than the English. Many fine plants were exhibited, and attracted much attention, some of the kinds being pretty and bright in variegation, whilst all were striking. M. orbifolia and M. hieroglyphica, both forms of the variable M. fasciata, are handsome in having roundish leaves a foot or more in diameter, and the veins picked out in other colours than the rest of the plant. *Heliconia illustris* was gorgeous in colours, plants 5 feet high, and as much through, being more cardinal-coloured than green. *Cyclanthus bipartitus*, 8 feet in diameter, shown by M. RIQOUTS, *Coccoloba pubescens* 8 feet high, with orbicular leaves from top to bottom, and each a yard across. *Dracena Triomphe de l'Exposition* is a form of *Cordylina australis*, near Doucetii, but with the leaf bases tinged with bright red, and the stripes creamy-yellow instead of white. *Lea amabilis*, *Pavetta borbonica*, *Aralia sonchifolia*, *Carladivoea palmata* and C. palmifolia, the latter like P. plicata, *Strelitzia Regine*, *Artocarpus incisa*, *Dizygotheca* (*Aralia*) *leptophylla* in flower.

CAMELLIAS.

There were not very many Camellias shown, but a few in the Annexe were of good form and well-flowered plants. For fifteen plants in variety, M. E. DE COCK, Ghent, was 1st, the best being *Lavinia Maggi*, *Bicolor de la Reine*, *Mathotiana alba*, and *Reine des Belges*.

For a collection of thirty Camellias, the 1st prize was given to M. LOUIS ECKHAUTE, Ghent, who staged a well-grown and freely-flowered collection of very fine specimens, the best being *Madame Cochet*, *Leeana superba* (grand), *Comtesse Lavinia Maggi*, *Roi Leopold*, and *Mathotiana alba*.

For a specimen Camellia, the 1st prize was awarded to M. J. VERVAENE, for a well-flowered plant of *Madame Cochet*.

AZALEAS.

The Ghent exhibitions owe very much to the Azaleas of various sections, particularly varieties of *Azalea indica*. We have few such plants as those the Belgian horticulturists take so great delight in. There are few pyramidal-trained bushes, most of them being umbrella-shaped, some exactly so, others, the same form in various degrees of modification. They were arranged in the temporary building known as the Annexe, which, in capacity and in artistic characteristics is exactly suitable to the display of these and similar plants. Standing upon the summit of the staircase that connects the Annexe with the old saloon and gallery, the Azaleas are the most effective feature of the display. They are placed rather closely together in beds a few yards long, and 9 to 12 feet wide. In such a bed not a leaf can be seen, each plant presents an unbroken surface of blooms, and the colour being mixed, the effect is that of a patchwork picture. This floral lavishness is relieved by a *Dracena* or similar graceful plant in a pot placed at each corner, immediately exterior to a narrow verge of grass that is laid around the Azaleas. On Sunday, at mid-day, when most of the visitors were in holiday attire, the scene was remarkably gay. We should add that the paths are metal colour, being laid with finely-broken dark-coloured stone.

The following new varieties of *Azalea indica* are the best of those exhibited by Mr. JOS. VERVAENE, 13, Chemin de Rode, Leideberg-lez-Gand:—President Van Inmschoot, semi-double, deep crimson; Madame Joseph Vervaeke, a large semi-double flower, salmon-pink in colour, with deep spotted blotch; Madame G. Botelberge, semi-double flowered, purple in colour, very large; Souvenir du Congo, large single flower, purple colour with fine spot; Perle de la Belgique, a very fine double-flowered white variety; Mons. Milland, a semi-double flower, crimson-lake in colour; and Mons. Jerome Vervaeke, deep crimson, double flower, very bright.

The following varieties exhibited by M. O. VANDER-CRUYSEN of Gendbrugge are to be commended:—Madame Cuppe, a double-flowered variety, soft pink in colour, with darker centre; M. Emmanuel Aldruken, a large semi-double flowered variety, salmon-red in colour, with deep spot; and Madame Arthur de Smet, a distinct flower with white ground, splashed and faked with purplish lilac.

Messrs. F. SANDER & Co. showed the following new Azaleas:—Mrs. J. Godseff, semi-double, very large red flower, with good blotch; Julius Roehrs, light purple semi-double flower of good form. Mr. O. Thomas is similar to Mrs. J. Godseff, but is a little deeper coloured. Mr. Fred Moore has large flowers of good form, rosy-purple in colour, with effective blotch. Mrs. S. Seager has semi-double crimson-lake coloured flowers.

Of the winners in the various classes for groups of ordinary varieties we can only refer to a few.

The best collection of thirty *Azalea indica* plants was from M. DE GHELINCK DE WALLE of Ghent; and the best amateur's collection of twenty plants was found in an admirable exhibit from the Comtesse DE KERCHOVE DE DETERGHEM.

The best group of twenty *Azalea indica* from the trade was shown by MM. VERVAENE BROS.; and the best group of twelve plants by M. P. E. DE COCK.

There were several first-rate exhibits in the class for which an object of art, value 200 francs, was offered by M. OUS

DE SMET. This was for sixty plants of *A. indica*, of not more than a certain diameter, nor fewer than thirty varieties. The best flowered examples were from Messrs. F. SANDER & Co., Bruges; but, being contrary to schedule in point of height, &c., the collection was placed 4th, and the 1st prize was won by Société Anonyme L. Van Houtte, Père, who had a very fine exhibit.

M. AD. D'HAENE, of Gendbrugge, had the honour to win the class for a collection of 100 varieties.

Azalea mollis was well shown. M. PYNART VAN GEERT, Ghent, won a Gold Medal for the best thirty plants; and M. B. SPAAER Gold Medal for twenty plants.

In competition for a collection of twenty plants of hybrids between *A. mollis* × *A. sinensis*, the 1st prize was taken by MM. KOSTER & Sons, of Boskoop, Holland, who also showed a lovely group of the fine variety of *A. mollis*, known as Anthony Koster, a soft yellow-flowered sort, and one of the very best and most effective of this section. In other classes M. A. DE SMET showed successfully.

FLORISTS' SPECIALTIES.

There were a few exhibits of bouquets, various designs worked with cut flowers, and vases decorated with them, but none of these need to be remarked upon, as generally they were much below in quality those generally exhibited at the Temple Show of the Royal Horticultural Society. At Ghent, the more simple arrangements were the better executed, and they exhibited the better taste.

MISCELLANEOUS.

The best amateur's greenhouse was adjudged to be one shown by M. C. Buss, of Ghent; and M. J. B. COURT, of Brussels, exhibited a very commendable temperate-house. Statues, vases, plans of gardens, collections of microscopic objects illustrative of the structure of vascular cryptogams, together with various other exhibits of a miscellaneous character added interest to this remarkable show. A very large collection of garden tools and instruments was made by MM. DUTRY, Colson.

ENGLISH EXHIBITS.

The only English amateur who saw his way to exhibit at Ghent was W. THOMPSON, Esq., of Stone, Staffordshire (gr., Mr. Stevens), whose splendidly-grown *Odontoglossums* are remarked upon with the rest of the Orchids.

Messrs. JAS. VEITCH & Sons, King's Road, Chelsea, exhibited a group of their strain of *Hippeastrum*, well known over Europe by reason of its excellence, and a very pretty group of *Nepenthes* and other allied plants. A Work of Art was awarded Messrs. Veitch.

The *Nepenthes* included N. *Dicksoniana*, N. *Morganiae*, N. *Burkei* excellens, N. *Hookeriana*, N. *Veitchii*, N. *Curtisii* *superba* (a very fine plant), N. *mixta*, N. *sanguinea*. There were also *Sarracenias* *Drummondii*, *Chelsoni*, *purpurea*, and several plants of *Drosera*, *Cephalotus*, and *Heliamphora*.

Messrs. Wm. CUTTISH & Sons, Highgate Nurseries, London, N., showed how in England we cultivate and admire the varieties of *Souvenir de la Malmaison* *Carnation*, by exhibiting a group of these plants in bloom, including the white flowered variety, and several of the newer-coloured ones. A number of plants in bloom of *Richardia Elliptica* added interest to this group, which included also a few varieties of winter-flowered *Carnations*, particularly a very bright one known as *Winter Scarlet*.

A stand occupied by the JADOO COMPANY, Ltd., Exeter, set forth the claims for this compound, now well known as a rooting medium for plants; various photographs were displayed, which represented some effects of using same.

Messrs. K. P. KEA & Sons' *Hippeastrums* from Liverpool, which were so successful in the competitive classes for these plants, are noticed in another column.

The best zonal *Pelargoniums* in this show were some sprays of cut flowers from Messrs. H. CANNELL & Sons, Swanley, who sent some of the brightest of their excellent strain of large-flowered types, and staged them in much the same manner as the firm does in England. Flowering sprays of *Rosa alba grandiflora*; plants of blue-flowered, and other varieties of *Primula vulgaris* were from the same firm.

In so vast a show it is impossible to note even everything that is noteworthy. Next week we shall add a few more particulars concerning the miscellaneous exhibits.

SOCIETIES.

CHESTER SOCIETY OF NATURAL SCIENCE.

THE SAN JOSÉ SCALE PEST.—Mr. Newstead, curator of Chester Museum, who has made an exhaustive study of the San José scale pest, has been lecturing before the Zoological Section of the Chester Society of Natural Science on this pest. Mr. Newstead, who has had an interview with Mr. Long, Minister of Agriculture, and his advisers at the Board, said he had suggested that the Government should engage a staff of trained workers to detect suspicious imports of fruit and submit them for expert examination. The origin of the American fruit-pest scare was due to the action of Germany in March of the present year. That country had passed a law protecting itself from the importation of infested fruit. The oyster scale which infested some fruit trees resembled the San José so closely that it was impossible to distinguish one from the other except by microscopical examination. Mr. Newstead explained the life-history of the insect, showing that after two days of activity in the larval stage it became

an inert fixed mass, living in the same place for the rest of its life and sustaining itself on the tree juice, which in time stunted and diseased the tree. During one season a single female insect was capable of producing 500 or 600 young, and in some parts of America there were five or six broodings. Its presence had been recorded in three places out of America—Australia, Chile, and one of the western islands. He did not think it would thrive in England, but it was very desirable to prevent its introduction. The lecture, for which Mr. Newstead was cordially thanked, was illustrated by micro-photographic slides, drawings, and specimens.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

On the occasion of the meeting, held at the Corn Exchange, Manchester, April 14, 1898, there were present—Messrs. G. SHORLAND BALL (in the Chair), Law-Schofield, Leemann, Backhouse, Bolton, Johnson, and Gent. (Hon. Secretary).

SAMUEL GRATRIX, Esq., Whalley Range (gr., Mr. McLeod), showed a very fine *Lycaste*, a cross between *L. Skinneri* and *L. plana*, and named *Mary Gratrix*, the petals of which are of a dark maroon, and the sepals a dull terra-cotta, the contrast being very pleasing. A First-class Certificate was awarded. The same exhibitor also staged a very nice plant of *Dendrobium sibiyl*. THOMAS STATTER, Esq., Stand Hall (gr., Mr. Johnson), showed a very well-grown plant of *Cypripedium macrochilum giganteum*, which attained a First-class Certificate; and one of *Dendrobium nobile* *Bach-houseianum*. E. J. SIDEBOTHAM, Esq., Bowdon (gr., Mr. Shiner), showed *Cattleya speciosissima*, a fine plant and a good variety, but the flowers not so large as when he showed this plant about a year ago. DUNCAN GILMOUR, Esq., Sheffield (gr., Mr. Day), showed *Cattleya Schroderae* *albena*. This was entered as *alba*, but there was the slightest tint of pink in the flower, which caused the committee to give an Award of Merit only; in other respects the flower was first class.

J. LEEMANN, Esq., Heaton Mercury (gr., Mr. Edge), showed a light and distinct form of *Cypripedium Mastersianum* (Award of Merit); *C. Germianum* *violaceum*, *Cattleya Schroderae*, *C. Trianaei*, *Odontoglossum* species, a very fine form in the way of *Ruckerianum* (Award of Merit), and *O. crispum*, a very pretty white form, full and of excellent substance (Award of Merit). D. LORN, Esq., Stackstead (gr., Mr. Swallow), showed a fine form of *Cymbidium eburneum* (Award of Merit). M. G. BICKLEY, Esq., Saddleworth, showed a yellow form of *Cypripedium insignis*, with rather small flower, accounted for, no doubt, by its being out of season. Messrs. HUON LOW & Co., Enfield, showed a very fine dark-lipped form of *Cattleya Trianaei* named *gloriosa*, *C. Mendeli*, a very fine spotted *Odontoglossum crispum* called *The Gem* (Award of Merit); *Cymbidium Lowie-eburneum* (Award of Merit); *C. concolor* (Award of Merit); and *Cypripedium James Buckingham*. The same exhibitors also staged a very effective group, including the above named plants, and a very fine form of *Odontoglossum Wilckeanum*, *O. luteo-purpureum*, *Cattleya Mendeli*, *Oncidium Marshallianum*, *Cypripedium Swinburnii magnificum*, *C. selligerum majus*, and many others. The society's Silver Medal was awarded to this group.

SHIRLEY AND SURROUNDING DISTRICTS GARDENERS' AND AMATEURS' MUTUAL IMPROVEMENT ASSOCIATION.

APRIL 18.—The first monthly meeting of the fifth year of the above Society was held at the Parish Room, Shirley, Southampton, on the above date, Mr. B. LADHAMS, F.R.B.S., presiding, there being an average attendance of the members.

Mr. J. JONES, The Gardens, Terrace House, Polygon, Southampton, gave an interesting paper on "Table Plants, and Plants for House Decoration." A series of questions were put and answered satisfactorily, and a hearty vote of thanks was accorded to Mr. Jones at the close of his paper.

There was a very good show of hardy *Primulas*, contributed by Mr. B. LADHAMS, F.R.H.S.; also *Caladiums*, by Mr. E. J. WILCOX.

READING & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

ONE of the most interesting and successful meetings yet held, was that held on Monday last, when the prizes offered by Mr. Leonard Sutton at the commencement of the season, 1898, for the best Essays on "How to keep the Greenhouse gay from October 1 to March 31," and "How to crop the Vegetable-garden to ensure the best varieties of Vegetables from October 1 to March 31," were awarded to the successful competitors. The interest taken in the competition was greater than anticipated, thirteen members sending in papers, and it was not a matter of surprise that a good gathering of members assembled on Monday evening, 18th inst., to learn the result and to hear the prize-winning papers read by their writers. After the formal business had been transacted, Mr. C. B. Stevens announced the awards as follows:—

"How to keep a greenhouse gay": 1st, Mr. A. W. BLAKE, Foreman, The Gardens, East Thorpe, Reading (£1 11s. 6d.); 2nd, Mr. G. STANTON, The Gardens, Park Place, Henley-on-Thames (£1 1s. 6d.); 3rd, Mr. JOHN BOTLEY, Foreman, The Gardens, Warfield Hall, Bracknell (10s. 6d.).

"How to crop the Vegetable-garden": 1st, Mr. E. TROLLOPE, The Gardens, Coombe Lodge, Whitechurch (£1 11s. 6d.); 2nd, Mr. H. WILSON, The Gardens, Lower Redlands, Reading (£1 1s. 6d.); 3rd, Mr. G. HIXON, The Gardens, Sherwood Lodge, Reading (10s. 6d.).

Mr. L. Sutton in presenting the prizes said that he considered the subject of essay writing was one of the most useful and beneficial to the members that the society could take up, for it encouraged the putting of one's ideas on paper, and at the present time it was those gardeners that could go to their employers with well-thought-out ideas that would prove successful, and it would also be of the utmost value to the young gardeners who entered these competitions, for they would reap the benefit of their study and research in after life. The president then called upon the various winners to read their papers, and although, of course, all were on the same subject, yet they were treated from different standpoints, thus creating great interest amongst the members present. A hearty vote of thanks was passed to Mr. Leonard Sutton for his kindness in giving the prizes, and also to the members for reading their papers.

Owing to the success of the venture, and the statement by the writers of the assistance they had received from an educational point of view in writing their papers, the Association has decided to take up this interesting subject as a part of their programme for season 1898-99, and a vote was passed that a sum not exceeding £8 should be devoted for this purpose, but that the competition should be divided into various grades, thus giving all members an equal chance to compete.

Cut flowers were staged by Mr. WOOLFORD, The Gardens, East Thorpe, including two good forms of *Odontoglossum crispum*, two fine types of *Cattleya Lawrenceana*, spikes of *Amaryllis* *Empress of India*, and spathes of *Anthurium Scherzerianum* *Wardii*; also flowering spikes of *Prunus sinensis* *flore pleno* by Mr. SWANBOROUGH, Warfield Hall Gardens; whilst vegetables were shown by Mr. STONE and Mr. HINTON, including some nice heads of Sutton's April Cabbage.

SOCIETY OF ARTS.

SOURCES OF COMMERCIAL INDIA-RUBBER.

WE publish the summary of a Cantor Lecture delivered by Dr. MORRIS, C.M.G., at the Society of Arts on April 18:—"Since the days when Le Condamine first described the Rubber-tree of Brazil, and Don José, King of Portugal in 1755 sent several pairs of his royal boots to Paris in order that they might be covered with the water-proof 'gum elastic,' the use of India-rubber has enormously increased. Besides the demand in almost every department of arts and manufactures, the rapid development of cycling, and of the use of rubber tyres for carriage wheels has added largely to the increased consumption of this interesting article. The quantity of raw Caoutchouc imported into the United Kingdom in 1890 was only 23 tons. Even in the year of the accession of our Queen it was only about 200 tons. Last year it had increased to 20,000 tons—exactly a hundred fold.

The present value of the imports is about 5 millions sterling. The total trade is probably not less than 10 millions sterling. More than one-third of the imports is now received from British possessions. In 1888, only about one fifth was so received. It is estimated that the world's consumption of rubber is 60,000 tons, of the value of fourteen millions sterling. This stupendous quantity of raw material is laboriously extracted from the milky juice of trees or shrubs belonging to three Natural Orders, viz., the Spurge (Euphorbiaceæ), the Nettles (Urticaceæ), and the Dogbanes (Apocynaceæ). These plants are distributed over nearly every part of the tropical zone—none are found in the temperate zones—the most important being found in the vast basin of the Amazon, an area almost as large as that of the continent of Europe; others are found on the east and west coasts of Africa, in Assam, and in the Malay Archipelago.

Hitherto the preparation of India-rubber has depended upon the crude hereditary art of a semi-savage people, the rubber-hunters, who explore the depths of tropical forests and obtain the rubber-milk at the sacrifice of millions of trees, which, owing to the recklessness with which they have been treated, are yearly decreasing.

The result is that many localities where rubber was once abundantly obtained, have almost ceased to produce it. New sources of supply have, it is true, been found in West Africa, especially in Lagos, the Congo State and Portuguese South-west Africa. But here also the work of destruction is rapidly going on. The collectors have to go further and further into the interior, and the cost of transit is thereby greatly increased. An account was given by the lecturer of an important discovery whereby the rubber could be extracted from the milk in a perfectly pure state. This is a mechanical contrivance on the principle of a cream separator. This was likely to prove of great value in the preparation of Central American and some West African rubbers, where the rubber flows in an appreciable quantity, and is capable of being brought in by the collectors. It would be indispensable on regular plantations of rubber-trees. By such means the process of preparing the rubber could be kept under scientific control, and all injurious substances such as the proteids and all chips and dirt excluded. The value of rubber so prepared has been shown to be increased fully 25 per cent.

The Rubber-trees of Brazil were then exhaustively described, together with the distribution of the various species yielding the Para rubber of commerce. The exports from Para in 1897, including rubber received from Bolivia, Peru, and Venezuela, amounted to 22,650 tons. Of this amount

51 per cent. was shipped to the United States, and 38 per cent. to the United Kingdom, leaving only about 11 per cent. or 2,500 tons for all other countries.

The price of Para-rubber, which regulated the price of all other sorts, has been steadily increasing since 1894, when it was 2s. 11d. per lb.; it 1895 it rose to 3s. 2d.; in 1896 to 3s. 4d.; in 1897 to 3s. 6½d.; while the average price for the first three months of 1898 was 3s. 9½d. At the last sales on the 15th inst. it was 3s. 11d. per lb.

It was, however, pointed out that these prices were below what they were in 1882 and 1883, when fine Para fetched 4s. 4d. per lb.

The next lecture of the series will be delivered on the 25th inst., the subjects treated will be African and Asiatic rubbers, and the prospects of obtaining at least some of the future supplies of rubber from cultivated trees.

THE ROYAL GARDENERS' ORPHAN FUND.

The annual dinner took place at the Whitehall Rooms, Hotel Métropole, on Wednesday evening last, Charles E. Keyser, Esq., presiding. The room was fairly well filled with guests, including Sir Trevor Lawrence, Bart., President of the Royal Horticultural Society, and Vice-President of the Royal Gardeners' Orphan Fund, Mr. N. N. Sherwood, Mr. W. Marshall, Mr. Martin J. Sutton, Mr. Leonard Sutton, Mr. A. W. G. Weeks, Mr. G. Moore, Mr. H. B. May, Mr. H. T. Wooderson, and numerous nurserymen, gardeners, and other supporters and friends of the Institution, who would have been more numerous represented, but for the circumstance that many had not yet returned from Ghent.

After the President had proposed the health of Her Majesty the Queen in felicitous terms, he proposed that of "The Prince and Princess of Wales, Patroness of the Fund, and the Rest of the Royal Family," following this with the toast of the evening, "The Royal Gardeners' Orphan Fund." The President alluded in the course of his speech to its origin in 1887, the year of the Queen's Jubilee, and to the great amount of good that it had done in the interval in assisting the orphans and fatherless children of gardeners all over the country. The funded money now amounted to £10,000, and its income to £1000 a year. There had been from various causes a slight falling off in its annual income, but he hoped that this would prove merely temporary, and that, in spite of the counter attractions in Ghent, the company present would respond fully to the needs of the charity.

The toast of prosperity to the Royal Gardeners' Orphan Fund was responded to by Mr. N. N. Sherwood, treasurer, in appropriate terms, and he indicated a method that might be adopted, of collecting money in aid of the charity, by gardeners enlisting the assistance of their employer's younger children, and providing them with collecting boxes.

The toast of "Gardeners and Gardening," proposed in a few felicitous remarks by Mr. Martin Sutton, was briefly responded to by Mr. A. W. G. Weeks. The amount collected at the various tables during the evening came to the sum of £515, inclusive of £116 from the chairman.

CATALOGUES RECEIVED.

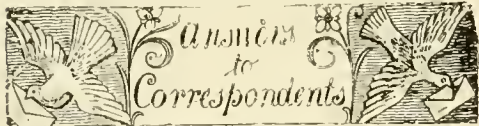
WILHELM PFITZER, Militärstrasse 74, Stuttgart—Plant and Seed Catalogue.

J. W. WIMSETT & SON, Royal Ashburnham Park Nursery, Chelsea, S.W.—Bonquets, Wreaths, Crosses, Sprays, Specimen Palms, &c.

WM. PAUL & SON, Waltham Cross, Herts.—Roses, Florist's flowers, &c.

LOTHROP & HIGGINS, East Bridgewater, Mass.—Dahlias.

TOOGOOD & SONS, Southampton.—Farm-seeds.



APPLE-PIPS AND CHERRY-STONES: *W. L. R.* The first of these are best sown in the autumn in pots or pans of loamy soil, and placed in a cold pit. Apple-pips may likewise be sown at this season in the open ground broad-cast, or drilled at a shallow depth. As a rule, fruit-stones should be layered in damp soil, that is a layer of stones alternating with a layer of soil 2 inches thick, and so on till the whole of the stones are covered. This is the practice when the quantity of stones is large. For an amateur it would suffice to lay them in a box or big flower-pot exposed to the weather, but sunk to the rim in the ground. Autumn-sown pips, and layered Cherry-stones will make their appearance during the spring and summer months.

ARALIA SIEBOLDI: *Aralia.* If in good condition, it would be cheap at 5s.

BOOKS: *Miss G. Morgan.* Cucumber Culture for Amateurs, published at the Bazaar Office, 170, Strand, W.C.; *The Tomato and its Culture*, published at the Journal of Horticulture Office, 12,

Mitre Court Chambers, E.C.; *The Potato and its Cultivation*, by A. W. Crews, published at the office of the Field, Windsor House, Bream's Buildings, E.C.; *Farming for Pleasure and Profit*, 8th section, by W. Ablet, published by Chapman & Hall, Ltd., 11, Henrietta Street, Covent Garden, W.C.

CARNATION SEEDLING: *W. L. A.* A full, bold flower, but we notice it has the bad habit of splitting its calyx. Some persons like the indented margin of the petals, as seen in this variety, but we must confess that we do not, as it imparts roughness to the flower.

CARNATION: *A. C., Clontarf.* Your Carnation Countess Ferrars seems to be a very fine and fragrant flower of a very pleasing shade of blush-pink.

CATTLEYA MENDEL: *G. E., Epsom.* The flower, though not large, is very pretty and distinct. The *Dendrobium nobile*, very fine.

CUCUMBERS: *W. W.* Your Cucumbers are suffering from canker of the basal portion of the stem, in consequence of having been planted too deep.

CUCUMBER ROOT: *A. G. E.* Filled with eel-worms. Throw out and char the whole of the soil and plants, starting afresh with plants, soil, and manure from new sources.

CUCUMBERS ROTTING: *London.* Probably the result of eelworms at the root. If so, there is no cure. Please send roots for inspection. The worms you remark in the soil are not eelworms—the latter are much too small to be detected without a microscope.

CYPRIPEDIUM SEED: *E. W.* The seed being the result of chance fertilisation, the blooms may be worthless from a gardener's point of view; but you will not have to put your patience to a longer test than three years before the plants flower. Sow the seed on the surface of sterilised peat, loam, sphagnum-moss, and sand, in a well-drained pan, and keep in the stove.

EUCHARIS: *G. B.* The only course likely to reclaim your stock would be to turn the plants out of the pots, shake off the soil, wash the bulbs and leaves clean in a tub of water, repot into good turfy loam, and plunge on bottom-heat of 80°. Put them into small pots at first, and afford larger ones as required.

HARDY ANNUALS, WHEN TO SOW: *W. L. R.* For this year's flowering, from the present date till the middle of June; and for early bloom next year, in the beginning and end of September in the south.

LAWNS: *Pteris.* If the lawn be very foul, you must relay or sow down anew after manuring and digging it. Directions were given in *Gardeners' Chronicle* Calendar for the Flower Garden on April 9 last.

MANOOLD AND BEET SEED: *Agriculturist.* Two or three seeds are enclosed in the corky calyx of the parent flower, so that when sown two or three seedlings appear at one spot; you should therefore sow in patches of two or three "seeds," at from 9 to 15 inches apart, according to kind and variety, and thin out the least promising seedlings soon after they make true leaves.

MUSHROOM-BED FAILING: *S. W.* The failure of the "buttons" to grow bigger was doubtless due to the almost entire loss of warmth in the bed. For lack of warmth in the soil, field Mushroom-spawn does not grow, or at the least Mushrooms are not commonly observed before the summer sun has raised the warmth of the soil to its highest point, and showers have fallen. A Mushroom-bed should have a sufficient bulk of short stable-dung and droppings from horses fed chiefly on oats and hay, trodden firmly together, to ensure a warmth of about 80° till the spawn is exhausted, say for two months. The spawn may be put into the bed 3 to 4 inches deep, when the warmth is at 98° and declining slowly, and then the soil (loamy) should at once be put on and beaten down. This coating will conserve the heat, which a covering of mats or hay will still further assist in doing, which is very necessary in a glass ventilated freely as such structures must be.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*J. E. Hissingbury.* A *Greivillea* or a *Hakea*, we cannot be sure without flowers; South Australian.—*Geo. Doolan.* The hard wood-plant is *Mackaya bella*, the other *Iris fimbriata*.—*R. T. Dendrobium bigibbum.*—

T. W. Ornithogalum nutans.—*H. B.* 1, *Selaginella Willdenovii*; 2, *Selaginella caesia*; 3, *Maranta zebra*; 4, *Selaginella viticulosa*; 5, *Ruellia Portellae*; 6, *Campylobotrys (Hoffmannia) regalis*.—*J. C.* 1, *Ornithogalum nutans*; 2, *Narcissus odoratus flore pleno*; 3, *Corydalis cava alba*; 4, *Fritillaria meleagris* variety; 5, *Scopolia carniolica*; 6, *Triteleia uniflora*; 7, *Narcissus pseudo-narcissus moschatus*; 8, *Uvularia grandiflora*.

NASTURTIUMS AND OTHER COMMON HARDY ANNUALS, &c.: *W. L. R.* The plants should appear in from ten days to a fortnight if sown at the proper depth in warm positions at this season. If the ground is very dry a thorough application of water by means of a fine rose can will help germination. Coarse seeds like those of *Nasturtium* may go 1½ inch under the surface, Sweet Peas 2 inches, smaller seeds ½ inch deep, and very small be sown on the surface, and scarcely be covered at all, merely pressed or beaten into the surface. The minute seeds of *Nicotiana affinis*, *Digitalis*, and *Lobelia* should be sown on the surface of soil, properly prepared by sifting, and put into pans, pots, or boxes, these being placed in warmth.

PTERIS: *I. G. B.* Two or three of the market forms of *Pteris* are more apt to get portions of their fronds between the veining destroyed than others. Woodlice and other insects probably cause the mischief.

PTERIS TREMULA: *Pteris.* We have seldom seen a worse case of scale infestation of a Fern. You can do nothing before cutting all the fronds, and burning them, even then the root-stock will be infested with them, but their numbers may be kept under by extreme cleanliness. First coat the root-stock with clay and cow-dung mixed to the consistency of paint, and thus smother the brown scale insects. The coating falls off in time, bringing the scale with it, and does not harm the Fern.

PURCHASE VALUE OF A SMALL NURSERY: *Corsican.* We are unable to answer your question. Why not consult a practical horticultural valuer?

RED-BORDERED LILY OF THE VALLEY: *D. M. G.* The beauty is quite taken out of the flower by the wretched dye. How could you do it? They will dye the Lily of the painters, or the *Eucharis*, next.

RED-SPIDER ON VINES: *H. S.* The frequent use of the syringe and soft water, as you suggest, would tend to greatly lessen the numbers of this acarus, but it is hardly possible to suppress the plague entirely by that means, and at the same time leave the bloom intact upon the fruit. You would do better to make use of Richards' XI. All vaporiser, or of the special kind which he sells for the annihilation of red-spider.

SHADY LAWN: *C. C.* The best kind of grass for growing under trees is *Poa pratensis*. If no kind of grass will grow, plant *Hypericum calycinum*, Irish Ivy, the major and minor varieties of *Vinca*, *Periwinkle*, native Ferns, *Butcher's-Broom*, and plenty of *Snowdrops* and *Crocuses*.

STAG'S-HORN MOSS, ALSO BUCK'S-HORN MOSS: *W. S. T.* This is *Lycopodium clavatum*.

WOOD-LOE: *J. G.* They may be caught in large numbers in flower-pots lightly stuffed with damp hay, and killed wholesale by pouring boiling water into all cracks, &c. We should suppose that the XL All vapour would be fatal to the insects.

COMMUNICATIONS RECEIVED.—*A. C.*—*C. S. S.*, Boston.—*J. Burt Davey*.—*H. H. D. O.*—*H. N. E.*—*J. Carter & Co.*—*Beekman*, Berlin.—*W. N. B.*—*R. N.*—*J. H. M.*—*E. [S.] Woking*.—*H. W. W.*—*T. F.*—*Wild Rose*.—*H. Roberts*.—*W. Carmichael*.—*D. T. F.*—*H. T. M.*—*E. Conner*.—*J. J. W.*—*E. P.*—*G. H. & B.*—*R. P.* (next week).—*T. H. B.*

CONTINUED LARGE INCREASE in the CIRCULATION of the "GARDENERS' CHRONICLE."

Important to Advertisers.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED,

and that it continues to increase weekly.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.

(For Markets and Weather, see p. xiv.)



THE

Gardeners' Chronicle.

SATURDAY, APRIL 30, 1898.

SOME CAUSES OF FAILURE IN APPLE CULTURE.

ATTENTION has been called by Mr. I. Woolverton, Secretary to the Fruit Growers' Association, Grimsby, Canada, to some of the causes of failure in Apple culture, which will be of interest to many fruit growers in our own country. The following is a summary of some of the main points.

Properly cared for, the Apple orchard is, comparatively speaking, one of the most valuable portions of the farm, even if it is only large enough for home uses. Situated as some farmers are, at a long distance from a railway station, or a good market, the expenses of carting the crop might make the odds against cultivating a commercial orchard; but otherwise, taking one year with another, the author considers the Apple crop can be made to pay twice as well, acre for acre, as a grain crop, all things considered.

1. THE LOCATION OF THE ORCHARD.

A common notion is that any place will answer for the Apple-trees, and therefore very often a stony corner that cannot be worked, or a very heavy clay which one does not want to cultivate, is set out as an Apple orchard. That such an orchard would never be a success goes without proving.

But a more common fault for the location is a wet soil left without under-drainage. Trees in such situations may grow well in summer, but are almost sure to become winter-killed, or at least so injured by the cold in winter that they become enfeebled and unproductive. The remedy is plain, a thorough system of drainage is of the first importance.

Another evil of situation is exposure to high winds. Those who have had almost their whole crop strewn upon the ground in the autumn by wind storms know how to appreciate the favouring protection of a dense wood of deciduous and evergreen trees. This cannot be quickly remedied, but a windbreak of a double row of Norway Spruce-trees will, in a few years, be of inestimable value in this respect.

2. LACK OF CULTIVATION.

The second cause of failure, and one of the most common, is lack of cultivation. Somehow or other, the idea has got abroad that the Apple-orchard needs no cultivation. True, there is no growth of wood, the fruit is small, and imperfect of its kind, but it never seems to occur to the owner that the trees would grow any better for being cultivated; or if he does believe in it, he does not sufficiently value his Apple crop to give it the same attention as he would his grain or Potato crops. There is need of a general waking up in this matter. It has been found that where the orchard is in an

unthrifty condition, so that the leaves are of a light-green or yellowish tint and ripen easily, and the fruit is scant and poor, cultivation is the surest and speediest cure, and will accomplish what pruning and manure will utterly fail in doing without it. Cultivation of the soil so exposes the land to the action of the air as to make available the plant-food which is already there in store; and besides, has a most important influence in counteracting the evil effects of drought.

3. LACK OF MANURE.

Who ever thinks of giving his Apple-orchard an annual dressing of manure? All the available manure is put to the field crops; no farmer would think of growing fine Potatoes, or a paying crop of grain without a heavy application of manure, but the Apple-orchard must shift for itself, without either cultivation or manure, and then if it does not yield a paying crop it is condemned as worthless, and ought to be cut down because it does not pay. Is it the fault of the orchard or of the orchardist? Why should it be expected to do what no other farm-crop could possibly do? Besides, it is most probable that the portion of land selected for the orchard had been under arable cultivation for centuries, and the fertility of the soil well nigh exhausted, before the trees were put in, and these are now blamed for their unproductiveness.

In regard to artificial manures, potash may be considered as one of the most important fertilisers for the orchard. It promotes growth, improves the flavour of the fruit by causing an increase of sugar and a decreasing amount of acid. It improves the colour of the fruit, and this is very important in Apples intended for the market. Apples draw heavily on the soil, and especially upon potash. It has been stated on very good authority that 100 barrels of Apples draw more heavily on the soil for manurial constituents than a crop of fifty bushels of Wheat, and its proportion of straw.

Wood-ashes are always considered of great value for application to fruit-trees. With regard to the action of ashes upon the soil, it is important to notice that a heavy application of unleached wood-ashes to a heavy soil is damaging to its texture, rendering it heavier still, more tenacious, and inclined to be cloddy. But for this reason its action on light soils is highly beneficial, rendering it more compact, filling up the pores and keeping it moist. It also tends to correct "sourness" in the soil by precipitating the soluble iron-salts which are sometimes over-abundant.

Another benefit of wood-ashes is that it promotes nitrification, or the process by which nitrogenous matters in the soil are rendered available for the tree-growth. It is thus evident that ashes have more value than simply for the amount of potash and phosphoric acid they contain, on account of their mechanical action, especially for light soils.

The quantity to be applied may range from about one-half to one ton per acre, or about one-half a bushel to a bushel, per tree of moderate size.

4. RAVAGES OF INSECTS.

The ravages of insects constitute frequently no less important a factor in producing failure in Apple growing for profit than manuring and cultivation. The advantages of spraying for insect pests are now fairly universal among the best growers. Experiments have proved the benefit of copper-sulphate for destroying fungi, and of kerosene-emulsion for such insects as do not eat the foliage, but only suck their nourishment

from the leaves. These discoveries are creating a revolution in fruit-growing in Canada, and making possible the highest success for those fruit-growers who will use to the best advantage the prescribed remedies.

Professor Bailey, of Cornell, says spraying is of some value every year on Apples, Pears, Plums, and Quinces. Nearly all the sprayed orchards are carrying a better foliage than those which are untreated; and where the codling-moth, bud-moth, case-bearer, and other insects are plentiful, it has been of decided benefit. It is recommended to spray thoroughly, or not at all. A tree is thoroughly and honestly sprayed when it is wet all over, on all the branches, and on both sides of the leaves. An insect or a fungus is not killed until the poison is placed where the pest is.

5. BAD HARVESTING.

Even presuming that the orchard has been properly cultivated, pruned, and manured, there are many who yet fail to handle the fruit to the best advantage. In the first place, it is a common mistake to leave the fruit hanging too long on the trees before picking, and in consequence they become too ripe to keep well, and a large proportion is spoiled by falling to the ground. As all the Apples upon a tree do not reach maturity at the same time, it will frequently pay to make two gatherings, leaving the greener and smaller fruits to grow and colour up. Attention to the details of preparing fruit for market always return a good profit, and must not be grudged. Careful handling and careful sorting are of paramount importance. Many throw Apples into the basket as if they were Potatoes, or squeeze them with thumb and finger as if they were made of stone, and so leave marks which spoil their beauty. Round cross-handle baskets, attached with a wire hook to the rounds of the ladders, are the best for Apple-picking.

In Canada most orchardists empty their Apples in piles upon the ground, but sorting in that case is back-breaking work, and every shower of rain delays it. Some empty them in heaps upon a barn-floor, but in a large orchard this means much labour in carting. A better system appears to be, to empty into barrels in the orchard, the heads of which are left in the bottom, and store under cover, and then, in packing, empty them out on a packing-table for sorting. For young orchards and scattered varieties this is certainly the best plan, for the important work of packing can then be done in a clean, dry place, without moving about from one part of the orchard to another.

6. POOR VARIETIES.

Perhaps the orchardist may not have the most profitable kinds of Apples; then top graft with those varieties which are proved most desirable. The work is not difficult or mysterious, but quite practicable by any one who can handle his knife skilfully; but for old trees, a method known as crown-grafting is very well adapted.

There is much difference of opinion as to the relative merits of autumn and spring planting of fruit-trees. We consider the advantages of autumn-planting are several. The trees become established during the open weather of winter, and they usually make a start in spring which is of great benefit; for this early start not only means a better growth the first season, but, what is more important, trees which get a very early hold upon the soil endure the droughts of a hot summer much better than trees planted in the spring. *J. J. Willis, Hecla Villa, Carlton Road, Harpenden.*

NEW OR NOTEWORTHY PLANTS.

GEONOMA? PYNÆRTIANA, *Hort. Sander.*

SOME doubt must necessarily exist as to the genus of this handsome Palm until it produces flowers and fruits. Nevertheless, even in its present condition it is strikingly handsome (fig. 98). Messrs. Sander's specimen, which was shown among the new plants at the recent Ghent Exhibition, is densely tufted in habit. The leaves are shortly stalked, and, as it appears, destitute of spines, and glabrous. One of the smallest leaves measures 28 inches (71 cent.) in length, by 10 inches (25 cent.) at the broadest portion between the centre and the apex. The form is ob-lanceolate, gradually tapering at the base, and dividing at the apex into two rounded erose lobes, with an acute sinus between them. The midrib is prominent on both surfaces, especially on the lower face. The secondary veins, which are numerous and parallel, form an acute angle with the midrib, and run from it to the margin. Native of Malaya. *M. T. M.*

REMINISCENCES OF GHENT.

IN so vast and varied an exhibition as that held last week at Ghent something must be overlooked. The constant interchange of greetings between friends and colleagues from all parts of Europe, is, moreover, apt to interfere with steady note-taking. We may, therefore, now add a few particulars to our previous report:—

After the new plants, perhaps the most striking feature was the collections of specimen-plants, especially of New Holland and Cape plants. These reminded us of what we used to have in London years ago, till people got tired of seeing the same plants year after year, and in terms of derogation called them "elephants." At the provincial shows especially, Mr. CYPHER still excites our admiration by his specimen-plants; and the more so, because it is not the mere size that we look to, but the perfection of cultivation, some plants, as every gardener knows, being much more difficult to manage than others—or to use the phrase of the day, some plants do not adapt themselves to their environment so well as others.

The splendid group of stove foliage plants exhibited by M. RIOOUTS and the SOCIÉTÉ HORTICOLE GANTOISE (figured on p. 265), have already been alluded to, as well as the Palms, the Cycads, and the touching group exhibited by M. LINDEN, of which we give an illustration in the present issue (fig. 100, p. 261).

M. BERNARD SPAE exhibited in the annexe a remarkably fine group of greenhouse Araucarias, some being perhaps 10 to 12 feet in height, and beautifully "furnished." They included *A. Cookii*, *Wiotii*, *Rulei*, *brasilensis*, *elegans*, *glauca*, *robusta*, *alba-spica*, *plumosa*, and other varieties of *excelsa*.

Mr. KERKWOORDE, of Ghent, should be mentioned for his interesting group of dwarf hardy Conifers, including a variegated form of *Tsuga canadensis*. The SOCIÉTÉ VAN HOUTTE, Père, also showed good specimen plants of Conifers, but we observed nothing new among them.

Cacti were shown in excellent condition by M. F. DE LAET, of Contich, and by M. BEDINGHAUS, of Ghent, who had some noteworthy specimens of *Echinocactus* of numerous species.

Messrs. SANDER & Co. showed a Wardian travelling-case containing specimens of *Anectochilus Leopoldi* with deep green velvety leaves, traversed by a whitish or cream-coloured reticulation. The plants had travelled 27,000 kilometres in four months, and though necessarily travel-worn, were, considering all things, in wonderful health and vigour.

M. LÉON DE BRUYN, the Minister of Agriculture, was elected Honorary President of the Jury; M. VIGIER, Minister of Agriculture in France, President of the National Horticultural Society of France, was nominated President; the Vice-Presidents being Dr. MAXWELL MASTERS, Member of the Institute of France, one of the delegates with Mr. HUDSON of the R. H. S. of London; M. RUYS DE BRERENBOCK, from Holland; M. FISCHER DE WALDUFIM, Director of the

St. Petersburg Botanic Garden; and Professor WITTMACK, of Berlin. The general secretaries were M. ED. ANDRÉ, of Paris; M. MICHELI, of Geneva; M. H. DE VILMORIN, of Paris; and Dr. BURGENSTEIN, of Vienna. The judges in the section 1 (new plants) were Dr. MAXWELL MASTERS, chairman; MM. ANDRÉ, MICHELI and BOIS. Mr. O'BRIEN was chairman of the Orchid section, and among others of our countrymen occupying similar positions were Messrs. W. BULL; JONES, Lewisham; KER, Liverpool; and OWEN THOMAS. The plants exhibited numbered over 12,000, disposed over a surface of 6752 mètres.

RESPECTFULLY SUGGESTED—1, That in future Quinquennials the columns of the winter-garden be draped with climbers, and that hanging-baskets be suspended here and there from the girders, so as to break the rigidity of the iron-structure; 2, that an office be opened in the centre of the town, where jurors and others might get their tickets on arrival, obtain information and guidance, and especially

exhibitor. For our parts we should have condemned him to take the thing away at once, and banished him from any future competition till his taste improved!

A COLLECTION OF HYACINTHS.—Messrs. BYVOET BROS., Overveen, Haarlem, who won the 1st prize at the Ghent Show for a collection of 150 Hyacinths in fifty varieties, staged the following. We give the list as being in the opinion of the firm, who are excellent cultivators, the most popular selection of fifty sorts.

Single Red.—Belle Querine, Cardinal Wiseman, Charles Dickens, Etna, Fabiola, Lord Derby, Macaulay, Moreno, Mr. Stanley, Mrs. Beecher Stowe, Ornement de Rose, Roi des Belges, Romeo, Solfatara, Von Schiller, Vuurbak.

Single White.—Alba superbissima, Baroness Van Tuyll, La Grandesse, Leviathan, L'Innocence, Mina, Mr. Plimsoll, Princess Amalia, Snowball.

Single Blue.—Charles Dickens, Czar Peter, Grand Lilac, Ivanhoe, King of the Black, King of the Blue, Leonidas, Lord Derby, Lord Palmerston, Marie, Mimosa, Schotel, Sir Henry Barkley, Starlight, William the First.



FIG. 98.—GEONOMA PYNÆRTIANA: HORT. SANDER (GHENT EXHIBITION).

where the addresses of the visitors staying in the city might be obtained. If each juror would write his name and address, much time would be saved in procuring interviews and meetings between friends—interviews now left to chance.

AZALEA LINEARIFOLIA.—We rarely see any but very small plants of this species in our own country. At the Ghent exhibition there was a specimen about 2 feet high and nearly 3 feet across, exhibited by M. EMILE DE COCK, 56, Boulevard d'Akkergem, Ghent. The plant bore very pale-coloured flowers, and the petals were narrow, but this species is very variable, for small plants from M. LOUIS ECKHAUTE, St. Denis, had rich rose-coloured flowers and wider petals. The latter variety is a very ornamental plant, but doubtless of very slow growth. Some of the plants, although not more than 3 inches high were well covered with blossoms.

WHAT NEXT?—One of the exhibitors of floral devices at Ghent, not content with twisting coloured ribbons around his Araucarias, had so arranged them that bows of ribbon, like those in the bonnets of some ladies, were made to stand up straight above the foliage. We did not see what fate attended this

Single Yellow.—Comtesse de Flandre, Duc de Malakoff, Ida, King of the Yellow, Obelisk.

Single Violet.—Haydn, Sir William Mansfield.

Double Red.—Koh-i-noor.

Double White.—Isabella.

Double Blue.—Laurens Coster.

M. JULES HYE-LEYSEN'S ORCHIDS.—The famous collection of this enthusiastic Belgian amateur Orchid cultivator is soon to have a new home in a fine block of houses to be erected on a very suitable piece of ground, adjoining that on which the Orchid-houses now stand in the Coupure at Ghent. For some time past the confined space in which the Orchids had to be grown, although a very high standard of good culture has been maintained, has entailed on M. Jules Hye, and his diligent Orchid-grower, Mr. Coen, the keenest watchfulness in order to keep the collection up to their notion of what is good condition. Here *Odontoglossums* reign supreme, and in the collection there are to be found some of the finest and most valuable spotted forms of *O. crispum* and of natural hybrids. We noticed our British variety, *Odontoglossum crispum Wrigleyanum*, in good form; also *O. c. Hyeanum*, one of the handsomest, and *O. c. Albertianum*, the claret-red *O. c. Frantz Maereel*, and other fine forms, all of them in the

most robust health. In flower in the several houses of Odontoglossums were remarked some good specimens of *O. crispum*, *O. Pescatorei*, *O. triumphans*, *O. luteo-purpureum*, *O. Wilckeanum*, &c., most of which are selected plants, and some of them are unique.

In the block of smaller houses there were in bloom many rare *Cypripediums*, also good examples of *C. callosum* Sanderæ, *C. Lawrenceanum* Hyeannum, *C. insigne* Sanderæ, and those two handsome hybrids, *C. × Madame Jules Hye*, and *C. × triumphans*, besides a number of other fine varieties.

Among other good batches noted were selected varieties of *Miltonia vexillaria*, a few of the rare ones being about to expand their blooms, and fine examples of *Miltonia × Bleuans* and its varieties, of which *M. B. nobilior* is one of the best.

In the intermediate-houses in bloom were a few *Cattleya Mendeli*, *C. Trianaei*, and *C. Schroderæ*; *Oncidium sarcodes*, *O. phymatichilum*, *Odontoglossum hastilabium*, *O. Cervantesii* roseum, *Zygopetalum Perrenoudi*, *Lælia × Latona*, *Vanda tricolor*, *Cymbidium eburneo-Lowianum*, and other *Cymbidiums*; and in a sheltered corner plants of *Vanda cœrulea* were doing well. In the small Masdevallia-house the varieties of *M. ignea*, *M. Veitchiana*, *M. Cheloni*, *M. Lindeni*, and others were remarkably well bloomed.

THE PUBLIC GARDENS.—*The Administration Communale de Gand* has always taken a keen interest in the development of the local horticultural trade, and has continued, so far as the means of the town permitted, to increase the area of the public gardens and squares. *M. O. Bruneel*, first alderman of the town, being at the same time President of the *Chambre Syndicale des Horticulteurs Belges*, has been director of the public gardens for the last sixteen years, and the progress made during that time will have been noted by the visitors to the successive Quinquennial Exhibitions, but at no former time in so marked a degree as now, when the good work of *M. Henri de Wilde*, who was appointed superintendent about two years ago, has become apparent. There is an area of land under *M. de Wilde's* charge of about 30 hectares, consisting of gardens of varied extent, and about 7000 trees in the different promenades of the town, and new avenues and boulevards are being planted every year. A special corps of men, wearing a distinctive uniform, has been organised to keep everything in order. The Square, Van Artevelde, and the garden round the Palais de Justice, are both very neat and well kept; the former bright with Tulips and other flowers, among which were striking lines of blue and white *Muscari botryoides*. In the latter, good specimen sub-tropical plants, such as *Dracænas*, Palms, Bamboos, &c. were effectively planted; the whole square being encircled by a border of Pansies, with a double edging of the fine bluish-white *Ionopsidium acaule*, which *M. de Wilde* considers one of the best and quickest-raised dwarf edging plants, the plants being procurable in a few weeks to any extent from seeds.

The Square du Béguinage was also very prettily laid out in modern style, although only a few years ago *La Béguinage*, of ancient reputation, one of the attractions of the town for visitors, was a much more sombre-looking spot. In various parts of the town the squares were bright with Tulips, of which *La Reine*, *Rose Gris de Lin* and *Belle Alliance* were specially showy, and in the square facing the Casino where the show was held, great masses of *Narcissus incomparabilis* and *Van Sion* were very bright and fresh.

The Great Park on the south side of the town is well worthy of a visit. At present it covers about 16 hectares, and an additional 6 hectares will probably be added soon, which will make it one of the finest parks in Belgium, and highly creditable to the local authorities. At present clumps of *Magnolias*, and other spring-flowering shrubs and plants, make it very attractive.

LEAF-SOIL AS A ROOTING-MEDIUM FOR ORCHIDS.—We were interested when visiting the establishment of *L'Horticulture Internationale* at Brussels the other day to find that an experiment is being

made there in regard to the possible suitability of ordinary well-decayed leaf-mould as a rooting medium for *Odontoglossums* and other species of Orchids. It would be premature to give the following circumstances as results, for the trial is by no means concluded. Present indications, however, show that the plants root exceptionally freely into the material; that they grow well, develop good foliage, and fat, fleshy pseudo-bulbs, but the flower-stems are weaker, and it seems probable that the plants will flower less well in leaf-mould than in the ordinarily-used compost. All the drainage used in these trials is one crock at the bottom of each pot.

THE ROSARY.

ROSE PROSPECTS.

ALTHOUGH experience has shown us that the prognostications as to the probable character of the Rose season are too often falsified, and that the performance does not correspond with the promise, yet the anxiety to know what is likely to be the character of the season is always a matter which occupies very much the minds of the rosarians as the month of

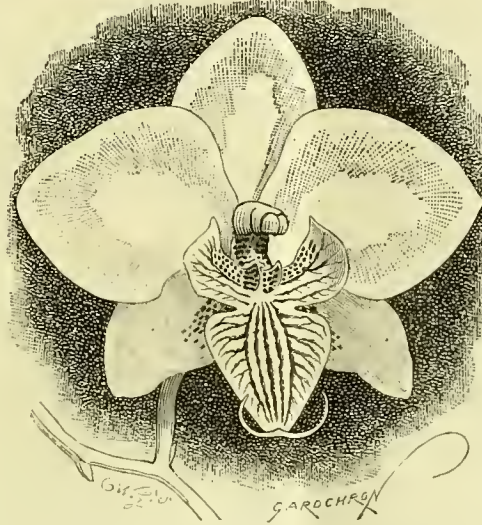


FIG. 99.—FLOWER OF PHALAENOPSIS SCHRODERÆ X P. LEUCORRHODA X P. INTERMEDIA VAR. PORTELI.

Shown by Messrs. H. Low & Co.

(See our report of the Royal Horticultural Society's Meeting in our issue for April 16, p. 238.)

April opens; and never perhaps has there been a more curious state of affairs than in this present year. An unusually mild winter, without frost or snow of any importance, seemed to indicate a very early season, and one was continually asked, as growers saw the growth that was being made, "Ought we not to prune early?" These were the questions of novices mostly; more experienced growers knew that early pruning in such conditions would be injurious, for if the mild weather continued it would induce the lower buds to start, and then these would probably meet with some check afterwards—and so in effect it happened. March of many weathers brought us towards its close what is now the fashion to call a blizzard; in this part of England (Kent), so heavy a fall of snow took place, accompanied by a strong northerly wind, that the roads were in many places blocked, and all forward shoots were considerably blackened, and for a long time there seemed to be a complete stoppage of growth. This, on the whole, was not unfavourable to the Rose, where pruning had not been commenced too early; it gave a check that was much needed, and made such a complete change in the state of affairs that growers began now to talk of a late, instead of an early season. I think, on the whole, this check has been beneficial to the Rose: the wood is sound, there are none of those dark places on the rind which

indicate that the rough hand of frost had laid hold of them. If there have been any losses among Roses during the past winter, it cannot therefore be put down to the effects of frost; and judging from my own small experience, I should say that there were fewer gaps in the Rose-beds this spring than in any previous one that I can recollect. Teas, too, have escaped quite uninjured, and will now be subjected to pruning. I have just finished mine, and they look sound and well; in fact, I do not find in this south-eastern part of England that they suffer more than the H.P.'s. As I have mentioned these, I may allude to the curious alteration that has taken place with regard to them. We are undoubtedly a people who deal in extremes, whether it be in politics, theology, dress, or anything else; we are always subject to what has been called the swing of the pendulum. Some time ago an outcry was made about the neglect of what are called garden Roses, and lamentations made over what were sentimentally called, "the dear old-fashioned Roses." Well, the cry was taken up, and what has been the result?—the great diminution of interest in what are called exhibition Roses; and I am credibly informed by some distinguished professionals that the demand for them by the general public has greatly diminished. Of course, those who wish to exhibit will be as keen on them as ever; but the non-exhibitor is continually told to avoid these "fat Roses," and as what are called garden Roses can be cultivated with less trouble, he is not disinclined to listen to the suggestion. There is another indication of this change in the very small number of new varieties that are offered by the French growers. Time was when it was not unusual to have between forty and fifty of these announced, and I recollect in one year one raiser advertised eighteen new H.P. Roses, and now the last French catalogue does not contain more than half-a-dozen; the usual number, however, is made up by the Teas, hybrid Teas, and other classes which are offered to us. There will not, therefore, be that anxious looking for new varieties at our exhibitions that used to form one of the delightful features connected with our Rose prospects. Of course, it is impossible to say what some of our home raisers may have in store for us. The distinguished firms of Messrs. Paul & Sons of Cheshunt, Messrs. W. Paul & Son of Waltham Cross, and Messrs. Alexander Dickson & Sons of Newtownards, have often surprised us with their novelties. One can well remember the time when *Devoniensis* was the only English-raised Rose to which we could lay claim; then, at many years' interval came John Hopper, and year by year the firms which I have mentioned brought forward some excellent varieties both in Teas and hybrid perpetuals, and continue so doing.

Amongst the new Roses, both British and foreign, which we shall look to see at forthcoming exhibitions, one may especially note *Empress Alexandra* of Russia, from Messrs. William Paul & Son, of Waltham Cross; it is a large globular flower, of peculiar colour, a rich lake-red, shaded with orange and bright crimson. The Rev. Alan Cheales, from Messrs. Paul & Son, a striking novelty, very large, pure lake, with reflexed, silvery-white shaded petals. Mrs. Frank Cant (Messrs. Frank Cant & Co.) is a large, well-formed, and free-blooming Rose of the Gabrielle Luizet type, the colour a bright rose-pink, and of a vigorous habit. Then there is *Ulster*, which obtained a gold medal for Messrs. Alexander Dickson & Sons, and promises to be a valuable addition to the series of H.P.'s of which Mrs. Sharman Crawford and Helen Keller are well-known examples; the habit seems to be vigorous, the flowers are freely produced, and are borne on strong footstalks. Again, there is *Countess of Caledon* from the same firm, which ran very close for the gold medal, and appears to be likely to be a favourite for garden decoration, the colour a deep rose.

Amongst the foreign Roses, there are two with the sight of which I have been favoured by Mr. Frank Cant, and which come under the designation of garden Roses, and which, from their peculiar colour, will find favour with lovers of this style of flower; they are pure Teas, with pointed buds, and in their

unexpanded form are very beautiful. One is Madame René Gerard, a large flower of a coppery-yellow colour, shaded with the same colour as Ma Capucine; the other, 'Souvenir de J. B. Guillet, which ought to be a good Rose, calling to remembrance that most successful raiser of Tea Roses—a very brilliant, probably the brightest of Tea Rose, a red shade of Ma Capucine, passing into a lighter shade of the same colour. Then there is announced a white Maman Cochet; should this be really white, and maintain all the qualities of the flower from which it has ported, it will be a most valuable addition to our white Tea Roses. I cannot come to the same conclusion with regard to a white Maréchal Niel, the glory of that flower being its brilliant yellow colour; its habit is not desirable, as the flowers hang down so, and if the sport does the same, it will not be much of an acquisition. Of course, there are a number of other Roses announced from the French raisers, but they have not been seen on this side of the Channel, and we have long since realised that they see Roses with a very different eye to what we do; so we must patiently wait. I have omitted to mention one Rose which I saw at the Drill Hall as a pot-plant, exhibited by Messrs. Paul & Son, viz., Antoine Rivoire, a clear, deep flesh-colour, with yellow base; it is said to be sometimes flushed carmine, but this colour was not in the flower that I saw. As a pot-plant it seemed to be all that was desirable; and from its good substance, I should think it would do well in the open.

One cannot write about Rose prospects without alluding to Rose exhibitions, and especially those of the National Rose Society. The three exhibitions will be held at the Crystal Palace, Bath, and Halifax; that at the Palace ought to be, if the season be favourable, the best that the Society has ever held. The classes are varied, and great weight has been given to the decorative classes; while one new feature has been introduced, namely, a class for Lord Penzance's Hybrid Sweet Briars, the 1st prize in which has been won by Lord Penzance, and the 2nd and 3rd by Messrs. Keynes, Williams & Co., Salisbury. The two provincial shows will be held in places where Rose shows have existed for many years, and there is no doubt that they will be carried out in the same spirited manner as on former occasions. Altogether, then, our prospects are hopeful; and, should no unforeseen calamity overtake our Roses, we may expect much enjoyment from them. *Wild Rose.*

SCALE INSECTS AFFECTING THE PEAR-TREE.

THE following communication has been kindly sent by Mr. Robert Newstead of the Grosvenor Museum, Chester, in answer to some enquiries made, and specimens of Pear-scale sent by Mr. J. Simpson of Wortley, Yorkshire, who is evidently in doubt as to the names given to these insects by different entomologists, pomologists, and writers on horticultural subjects:—

"The name Pear-tree scale is a misnomer, as it applies equally to four species of scale insects found upon the Pear, viz., *Aspidiotus ostreaformis*, Curtis; *Mytilaspis pomorum*, Bouché; *Lecanium pyri*, Schrank; and *Pseudococcus* sp.

Diaspis ostreaformis was described in error by Signoret (*Essai s. l. Cochenilles*, p. 121, pl. iv., fig. 4), as has been abundantly proved.

Aspidiotus conchiformis, Curtis, does not exist except as a useless synonym of *Mytilaspis pomorum*. The female scales of *Aspidiotus* and *Diaspis* are more or less circular, or irregular ovate; those of *Mytilaspis*, mussel-shell shaped or linear. There is also a marked difference in the form and character of the male scales of these genera.

The late Dr. Signoret wrote the first monograph of all the then known Coccidæ found in various parts of the world. His work, which was completed in 1876, is very valuable and rare, and although out-of-date, is indispensable to the student of the group. Since the publication of Signoret's work there has been a steady increase in the number of workers in this group of insects; but owing to the tedious preparation necessary for the

microscopical study of them, the workers are still few in number. On the Continent we have Dr. Karl Sulz at Prague, Dr. Gustave Leonardi and Professor Berlese at Portici, Italy; and formerly Mr. Morgan in Portugal. In the United States of America, Professor L. O. Howard, the States Entomologist, and Mr. Theo. D. A. Cockerell, besides several professional entomologists who are thoroughly acquainted with the economic species of that country and other parts of the world. Mr. Maskell, the Registrar of New Zealand, has done more to advance the study of the Coccidæ than any other student, and his works should be available to every worker. In Australia, Dr. Froggatt and Mr. French are authorities for certain sections of the group. And Mr. E. Ernest Green is now preparing an elaborate work on the Ceylonese species. England can boast in having, as a pioneer in this difficult study, no less an authority than the veteran entomologist, Mr. J. W. Douglas, to whom the writer owes many debts of gratitude for hints ungrudgingly given during the last nine years that he has devoted to the study of these pests. It will be seen, therefore, that the "British authorities" are not "a little behind," but well advanced in the study, and can take equal rank with their fellow workers in other parts of the world.

The species submitted for identification is the *Mytilaspis pomorum*, B., or "Mussel Scale," which in the writer's practical experience as a fruit-grower, is much more frequently found upon the Apple. It is also fond of the Cotoneaster, and occurs also upon Currant, Raspberry, Hawthorn, Broom, Wild Rose, Vaccinium, Gorse, and common Heath (*Erica*). The writer has also met with it on Cassia under glass. It will be seen, therefore, the species is a very general feeder, and by no means peculiar to the Pear-tree."

COLONIAL NOTES.

NEW ZEALAND.

WE have been away for a month in the interior to see the Alpine plants at home, and to get photos of them *in situ* for a book we are preparing on the Alpine flora. We have been much struck with the beauty of the alpine *Senecio* Lyalli and its varieties, and we think they rank next to *Ranunculus* Lyalli. We have tried to bring them into cultivation in our nursery, but have hitherto failed owing to the heat of our summers. Seeds of these *Senecios* are rarely fertile, and this may be said of many of our Compositeæ. With regard to *Aciphylla*, we find them very bad seeders. The plant is dioecious, having male flowers on one plant, female on another. The male plants are disappearing, and this accounts for the imperfect state of the seed. To all appearances the seed is good when ripe, heavy, and full of albumen, but 90 per. cent. of it has never been fertilised.

Many of our New Zealand seeds take two or three years to germinate, *Clematis indivisa* is an example. The first year there is no sign of a plant; the second year 1 per cent. will come up; but if the pan is left in a cold frame undisturbed, every seed will germinate the third year. We never throw away our seeds till after the third year.

On the receipt of plants from New Zealand, they should be potted singly, and kept in cold frames till 12 or 18 inches high before they are planted out on a north border. The border should be prepared with peat and rough sandstone; plant the roots 3 inches deep with crowns inclining upwards, and let them slone. Any coddling treatment will kill them. A perforated pipe running at the back of the border (which should slope to the front) will enable the grower to keep them constantly wet during the heat of your summer. But, after the blooming period the supply must be cut off, or you will get no bloom the next season. *Adams & Son, Christchurch.*

CEYLON BOTANIC GARDENS.

The report for 1897 of the Director (Mr. J. C. Willis) of the Royal Botanic Gardens, Ceylon, is now before us. Among the work undertaken was the

introduction of new and important economic plants and experiments in cultivation. The director reports that: "A large amount of ground has been laid out during the year in experimental plots of economic plants, chiefly at Peradeniya. The labour required for this work has been provided partly by discontinuing the sale of common pot-plants for verandahs, partly by neglecting the ordinary work of the gardens, such as weeding, &c. An increased vote for labour has, I am glad to report, been sanctioned for 1898, the increase amounting to Rs. 1,150. The whole of this labour will be devoted to experimental work. Money has also been voted to provide the salary of an efficient native officer to supervise this work, under the immediate direction of the European officers." We further read that: "The completion of the late director's *Flora of Ceylon* has been undertaken by Sir Joseph Hooker."

"A large amount of time and labour has been expended in the study of the Cacao disease; and various diseases of Tea, Cocoa-nuts, Betel, Nutmeg, and other plants have also been studied by the Director and the Honorary Entomologist." Among the notes on economic plants, we find the following relating to Tea, Coffee, and rubber:—

Tea.—The total export is again the largest on record, exceeding 116,000,000 lb., an increase of 8,000,000 lb. over 1896. Exchange has continued high, and prices rather low (7'71d., against 8'21d. in 1896). The immense area now covered with Tea still remains singularly free from disease, but great care and attention must be exercised if this condition of things is to last. When an outbreak of any disease apparently due to insects or fungi is noticed, the affected plants should be at once destroyed by fire, to prevent if possible any further spread of the disease. One or two cases have occurred during the year of outbreaks of disease among nurseries of young plants grown from Indian seed. Planters should pay special attention to their nurseries in this respect, as considerable risk is run of importing dangerous and troublesome diseases with foreign seed.

Coffee.—The exports of Coffee barely exceeded 19,000 cwt., over 3,000 less than last year. The planting of Liberian Coffee has received a severe check by the very great fall in price which has occurred during the year.

Rubber.—The interest taken in the cultivation of Para rubber has received a very great impetus during the year, and the demand for seed has been enormously larger than the supply. These gardens form practically the only source of seed from mature trees. The total crop this year was rather over 100,000 seeds, of which 88,500 were sold to planters in Ceylon."

The extracts give some idea of the important work undertaken at this station, and of the energy with which it is carried on.

A SCHOOL OF HORTICULTURE IN NOVA SCOTIA.

Professor Sears, in the Report to the Secretary for Agriculture, gives an account of this school. There are fifty-five regular students, two of whom are from England. The instruction afforded includes the propagation of plants, seeding, budding, grafting, &c.; principles of pruning for wood or for fruit, pruning at different times of the year, and special pruning applied to different fruits; spraying of plants for both insect and fungous pests; choice of fruit, fruit-growing, tillage, planting, harvesting, marketing, packing, &c.

GARDEN PICTURES AND LANDSCAPES AT THE NEW GALLERY.

GARDEN pictures and landscapes are rather numerous, and form a decided feature in this season's exhibition at the New Gallery, and in some cases as parts of *genre* pictures, as in the case of Walter Maclaren's "The Balmie Gale from Hill and Dale," which give us besides excellent figures drawing and colouring. Worthy of note by lovers of rustic subjects, mention may be made of a landscape by James Charles, showing feeling for colour and detail in the group of Elms stripped, truly, in the barbarous fashion too often to be seen about to

suburbs, their fresh early summer greenery, however, contrasting well with the varied tones of the bit of copse at their foot.

The New Forest affords, as it needs must, abundant food for the artist, and "End of Autumn," by F. Golden Short, No. 28, depicting a glade with Oaks in the fall of the leaf is excellent; whilst No. 23, by Camille Vernede, affords us Oaks in their summer-attire, also excellently rendered. Arthur Lucas' "Cuckfield," which is the church on the hill at that village, is taken at a time of day when the sunlit building afforded the greatest contrast with the dark

hither and thither at all sorts of angles, but all very pretty notwithstanding, as we behold the orchard on this sunny May morning. We wonder if the owner has taken similar precautions against the "Worm i' the Bud," the dreaded winter Moth that may play sad havoc with the crop. At any rate, no grease-bands were visible on the stems. The "Pool," by James E. Grace, although consisting of but a few Birches, is the work of one who is possessed of the true artistic spirit. In Herbert A. Olivier's "A Garland Greeting," we seem to be transported to ancient Greece, excepting for the dresses

cliff, and yellowish-orange and bronzy hues of wild vegetation in the immediate foreground; and these two features, with the blue of the sea in the middle distance, make a successful whole. Arthur Lucas' "In a Garden," and Alfred Parsons' "Larkspire and Roses" will find admirers, although utterly dissimilar in subject and treatment. Small floral pictures, consisting of Roses, Azaleas, Japan Anemones, Irises, Chrysanthemums, Carnations and Love-in-a-Mist, were remarked, of which it must be said they were in all cases truthfully and carefully drawn, and prettily posed—no pun being intended here.



FIG. 100.—MEMORIAL GROUP OF PLANTS INTRODUCED BY THE LATE J. LINDEN, AT THE GHENT QUINQUENNIAL EXHIBITION.

(From a photograph by B. Jacobs & Cie., Ghent.)

mass of Scots firs adjoining. In "Sweet Williams," by Alfred Parsons, a capital use is made of a thick row of these plants in most abundant bloom on either side of a cottage-garden path. We should say to gardeners by profession "Please note," for you now seldom make all the use you might of this beauty among Dianthi. The back of the borders is filled in with the tall soft-yellow flower-spikes of the Evening Primrose, *Oenothera biennis*. The "Back of the Village," by the same artist, is like many another views in a South country and Midland village, an instance of abundant blossoming Apple-trees, not planted in straight lines or consisting of straight perpendicular stems, standing at a given distance apart, as we are advised in these days of American competition to plant our trees, but irregularly, leaning

of the young women, which seem decidedly modern, and the question involuntarily arises, how are we to fit in this kind of floral compliment with present-day ideas? The effect of the setting sun's rays lighting up the boles of the Fir-trees on the hill to the right-hand side of the figures, and also irradiating the prettiest one of the band of young women, is rather startling, and almost equivalent in its strained effect to limelight on a theatrical stage. The trees, herbage, and water in this picture are managed with happy effect. "A Pool on the River," by J. Clayton Adams, shows the still water of a shallow, with trees very naturally disposed, and over all a partially clouded sky—a pleasant scene, excellently drawn and painted.

John Finnie's "Runswick Bay" is part sea, part landscape, with, as a distant background of sunlit rocky

BOOK NOTICE.

HARDY HAWTHORNS.

THE Copenhagen Botanic Garden has long been noted for its collection of species and varieties of the genus *Cratægus*, and Mr. J. Lange, formerly Director of the garden, has done good service by publishing a descriptive illustrated monograph* of the forms there cultivated. It is written in Danish and Latin, and the plates are beautifully executed, and sufficiently coloured for all practical purposes. Mr. Lange is an authority on this genus, and it is hardly

* *Revisio Specierum Generis Cratægi, imprimi curam quo in Hortis Danicis coluntur*. Copenhagen, 1897. 8vo, pp. 106, with ten partially-coloured plates.

necessary to add that the descriptive part is highly critical; but what is more, it is singularly clear and intelligible. The species figured are:—*C. intricata*, Lge.; *C. sorbifolia*, Lge.; *C. Celsiana*, Bosc.; *C. pinnatifida*, Bunge.; *C. pinnatifolia*, Lge.; *C. altaica*, Ledeb.; *C. polyacantha*, Jan.; *C. orientalis*, Pall.; *C. tanacetifolia*, Pers.; *C. macracantha*, Loud.; *C. succulenta*, Schrad.; *C. hiemalis*, Lge.; and *C. Dippeliana*, Lge. For purposes of classification, Mr. Lange makes use of the direction of the lowermost pair of lateral nerves of the leaves, the presence or absence of hairs on the fully-developed leaves, deciduous or persistent stipules, and the colour of the fruit. Altogether forty-eight species are described, including several of unknown origin. I may add that the classification is purely artificial, as may be gathered from the fact that *C. oxyacantha* and *C. monogyna* are widely separated. *W. B. H.*

TREES AND SHRUBS.

MAGNOLIA CONSPICUA.

A REMARKABLY fine specimen of this pretty Chinese species is now in flower at Woking in the nursery of Mr. W. C. Slocock, and as it is from 25 to 30 feet in height, it presents quite a striking feature, being literally covered with its pure white flowers, which are sometimes suffused with purple. As the plant is sheltered by large trees, the frosts of the past few days have not injured it. The age of this specimen must be more than seventy years, for an old inhabitant of Woking assures me that he can recollect it sixty years ago. Another fine specimen of *Magnolia grandiflora*, Exmouth variety, can be seen in the same nursery growing on a wall of a house, which, although not yet in flower, will present a grand sight during July and August.

Magnolia Soulangeana, the supposed natural hybrid between *Magnolia conspicua* and *Magnolia obovata*, with white flowers tinted purple on the exterior, is probably the hardiest *Magnolia* in this country, and several fine specimens, averaging from 12 to 15 feet high, and several yards through, are growing in St. John's, Woking. Specimens of *Magnolia Lense*, with rose-coloured flowers, is another distinct variety, the result of crossing *M. conspicua* and *M. obovata*, var. *discolor*. *M. stellata*, syn. *Halleana* is another plant that is well worth growing, and flowers very freely at Woking; it has pure white flowers, is of Japanese origin, introduced to this country in 1878. *Magnolias* thrive in the deep sandy-soil of Woking; but in exposed situations, and cold soils, slight protection is needed in the spring months. *E. S., Woking.*

THE WEEK'S WORK.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts

Pines.—When suckers from the old stools have grown to the required size, it will be necessary to detach them and trim the base of each with a sharp knife. Take off a few of the lower leaves and pot the sucker firmly into 6-inch or 8-inch pots, using fibrous soil from which the fine particles have been shaken out. Any suckers that were potted early in the season may now be shifted, before they become pot-bound, into the pots in which the plants will fruit. Leave a space of 2 inches for affording water in sufficient quantity, and when the potting is completed plunge the plants in a bottom-heat of about 85°. Plants that were potted some time ago, but were only partially plunged, owing to a possibility that the heat would increase beyond a safe point, should now be given attention in the direction of adding more tan, or firmly pressing round the pots that which was previously provided. If there is not sufficient tan to cover the pots to the rim, add a little now to the surface rather than disturb the plants by lifting them out. Examine once a week all plants that are rooting freely, and after testing them for dryness by rapping the pots, give sufficient to those that need water to thoroughly moisten the soil in each case. If any shading is used, it should be very slight, and only

during the hottest part of bright days. The temperatures may range from 70° at night to 75° during dull days, allowing a rise of 5° to 10° when the house is closed for the day; and by closing early, less fire-heat will be necessary through the night. Afford ventilation with care, and gradually commencing before the temperature rises above 75°. Plants with swelling fruit may be kept a little warmer than the above temperatures, and all the gills should be removed from the base of the fruits. Remove any suckers that show on growing plants, and in the case of fruiting-plants leave one or two only at the base. Spray the plants with the syringes on fine days, at closing time; but at other times, damp the floor, walls, and the tan-bed between the plants. When damping between plants with fruit swelling, direct some of the water to the lower leaves so as to nourish the roots in the axil.

Melons.—Plants upon which the fruits are colouring may be kept rather dryer at the root than formerly, and plenty of air should be afforded. The fruit is fit for cutting from the plant when the stalk shows signs of parting from the rind. Give plenty of water to plants with swelling fruits, and occasionally add some manure to the water. When syringing take care to do it thoroughly, so as to prevent red-spider. They are more liable to canker at this stage than at any other. If the stem immediately above the soil shows the least indication of canker, apply freshly-slaked lime round the part. Plants just coming into bloom will need attention in regard to setting the flowers; no syringing should be done at this time, but a somewhat dry atmosphere maintained. The house may be damped once each day, in the afternoon. Put out succession plants before they suffer check from becoming pot-bound, or failing present accommodation, afford them a large shift. Another sowing of seed should be made at this date.

Cucumber seed may be sown. When the roots of the older plants have permeated the last layer of soil that was given, add another layer of the same kind and quantity. Frequently attend to stopping and tying. Afford water copiously whenever the soil shows signs of dryness, occasionally substituting manure-water, and for a change use some well-proved concentrated manure. Syringe twice on fine days, and once if the weather be dull. Do not allow the fruits to remain on the plants when they are fit to be cut.

PLANTS UNDER GLASS.

By W. MESSENOER, Gardener, Woolverstone Park, Ipswich.

Hippastrums.—Plants whose flowering is past, should be encouraged to make growth by placing them in full light, plunging the pots in some moisture-holding material in a house or pit, and afforded good warmth and free ventilation in fine weather, soot-water and other weak stimulants being supplied occasionally. Bulbs that may be at rest should now be shaken out and repotted, as any further delay in starting them into growth hinders proper development, and the thorough ripening of the bulbs.

Centropogon Lucyanus.—If young plants are required, take lateral shoots 2 inches in length, and after trimming insert them in 5 or 6-inch pots filled with sandy soil round the edges of the pots. Cuttings of this plant root freely if put on a moderately dry shelf and shaded from the sun. The old plants may be cut back and repotted after shaking out a large proportion of the exhausted soil, and once the plants start to grow, afford them intermediate-house temperature.

Begonia Waltoniensis.—Cuttings of this variety should now be inserted in light sandy soil in 3-inch pots, and struck on bottom heat in a frame or in the propagating-pit, shading them carefully from the sun till rooted. As plants of *Begonia manicata* go out of flower, cuttings may also be struck, and if a large increase of the stock is desired, the stems may be cut into lengths of two or three joints each, and inserted singly in small pots. Make cuttings of *Begonia Gloire de Sceaux*, and similar varieties when these are obtainable, plunging the cutting pots in cocoanut-fibre on bottom-heat of 80°; affording water to settle the soil, and keeping them close. Repeated applications of water is apt to rot them.

Justicia flavicoma.—If strong cuttings are plentiful an increase may now be made, placing them to the number of five in a 60, or one in a thumb. Cuttings soon make roots if they are kept moist and shaded in a close hot-bed frame or under a hand-light. The old plants should be cut closely back, and when they break shaken out partially, and repotted in the same

sized pots. Young are preferable to old plants, growing with more vigour and being less liable to infestation by brown scale.

Greenhouse Rhododendrons.—Some varieties of these plants, as for example, Lady Alice Fitzwilliam, make straggling growth and become unsightly; these may, after being cut hard in, be placed in a genial moist atmosphere, where they will push buds freely from the old wood, and in two years will form shapely plants. The young growths of these species and varieties are impatient of strong sunshine, and must be slightly shaded from it.

Stephanotis floribunda.—Plants that were placed in heat early in the season will be showing trusses of flowers, and a considerable amount of growth, which should not be allowed to grow at will, but be kept tied in as it progresses. If mealy-bug be present let the plants be cleared of it before the trusses open, it being a difficult matter, and damaging to the flowers to do this afterwards. Manure-water in a weak state should be frequently applied to the plant when in active growth, and air freely afforded in the warmest part of the day when the weather is favourable.

HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Fruit-trees on Walls.—The present year has been hitherto exceptionally dry, and the deficiency of rain since January 1, according to returns from the Meteorological Office, amounts to more than 3 inches below the average in many parts of England; the showers that have fallen were light, and incapable of penetrating deeply into the soil. The snowfall has been very light in most parts of England, and the consequent deficiency of moisture is likely to make itself felt by wall fruit-trees especially, less moisture reaching them than trees in the open quarter. The trees on the eastern aspect are liable to suffer greatly, the greater part of our rainfall coming from west and south-west. Under these circumstances, the fruit-tree border should now be afforded a thorough application of clear water, or if liquid-manure be obtainable, this would be preferable, but it must be well diluted if rank and strong. If the soil has caked on the surface, let it be loosened with a digging-fork, so as to allow the water to penetrate in every part; and a few days after the water has been applied, the ground may be stirred with a Dutch-hoe to loosen the soil and give a crumbly surface, and thus act in the nature of a mulch in preventing rapid evaporation, and a light dressing of short manure will be useful in this respect. All kinds of fruit trees and bushes fruit will be benefited by water at this season, especially trees which have numerous flowers open, and failing this many of the flowers are sure to fall off.

Apricots.—In warm districts the foliage of these will now be sufficiently advanced to afford protection to the fruit, rendering fish-netting and other protective means unnecessary. Their removal is advisable, as their retention would render the leaves tender, and liable to burn during bright sunshine. Those Apricot-trees which have set a good crop of fruit may now have the latter thinned, taking off all the smaller fruits, and leaving others at 3 inches apart. It is as well to do this early, as exhaustion of the tree is thus prevented, and the grower is enabled to secure a good crop every year, large quantities of carbonate of lime and other substances being drawn from the soil, only to be thrown away afterwards if thinning be left till stoning has taken place; the growth of the tree is also weakened owing to the heavy crop of fruit that has to be taken afterwards in order to recuperate. A small, green kind of maggot (*Ditula angustiorana*) frequently attacks Apricot-leaves at this stage, doing much damage by eating them, and if left undisturbed for a few seasons it increases fast, and will then completely denude the trees. The grubs should be collected and killed.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorking.

East Indian-house.—*Bolsses*, *Pescatorias*, *Warscewiczellas*, *Huntleyas*, and *Batemannias* are now growing and rooting freely. These plants succeed well in pots or baskets, and in a soil consisting of peat and sphagnum-moss, using rather more moss than peat. Afford plenty of drainage, and when repotting keep the plants well above the rim of the pot. Healthy established plants that do not need to be moved may be resurfaced with heads of living moss. The plants should be placed in the coolest position

available in the East Indian-house, and be always shaded from the least degree of bright sunshine. In order to keep their surroundings continually moist, stand the plants upon a layer of sphagnum-moss upon a stage. Throughout the summer spray the foliage over lightly two or three times a day, and afford root waterings as often as may be necessary. Protect the plants from a dry current of air, or insect pests will attack them. *Calanthe veratrifolia* fast developing its flower-spikes must be kept free from green-fly, and in the case of small weakly plants, it will be better to remove the flower-spikes as soon as they appear.

Calanthes.—The deciduous *Calanthes* that were potted several weeks ago, are now rooting from the new growths, but it is necessary to advise beginners against over-watering the plants. Examine the most forward plants occasionally, and if the soil is found to be dry sprinkle the surface with tepid rain-water from a fine-rose can. As the plants become better established they may be afforded more water, and damp the sides of the pots morning and evening.

Cattleyas.—Plants of *Cattleya Trianaei*, *C. Gaskelliana*, *C. exoniensis*, *C. amethystoglossa*, *C. Scho-*

up flower-spikes, will require a little more water at the root until the flowers are fully developed; *C. Bowringiana* being at rest should be afforded water only at long intervals of time. Until growth commences a cool position in the house is necessary. The distinct *C. Walkeriana* is now producing flowers from the short slender shoots which issue from the base of the last-made pseudo-bulb, it should be suspended near to the roof-glass, and where it may obtain plenty of sunlight throughout its growing period.

Various Species.—*Lælia Lindleyana* should also be suspended to the roof-glass of this house, but a rather shady position is preferable. Should it be necessary, the plant may now be supplied with fresh potting material. In the intermediate-house the elegant-flowering *Platyclinis filiformis* is now starting to grow, and will require a more generous treatment. Suspend the plant in a moist shady corner of the house, and afford plenty of water at the root; an occasional syringing of the foliage with tepid rain-water will encourage the young growths and flower-spikes, and at the same time keep the foliage luxuriant and free from insect pests. Plants of the pretty *Oncidium ornithorrhyncum* and its variety *album*, which are

then set out the prepared plants in two rows in each trench, allowing 6 inches for dwarf, and 9 inches for the stronger varieties, from plant to plant. Seedlings growing in frames require much air in fine weather, otherwise they will become weak and stunted; overcrowding must also be avoided, which cannot, however, occur if the plants were pricked-out 4 inches apart.

Turnips.—Make sowings of Turnip-seed at fortnightly intervals till the middle of August, sowing thinly in drills hardly 1 inch deep, and drawn at 18 inches apart, and let the plants be thinned in good time to a distance of 6 inches apart, and eventually, as regards later sowing, that do not belt so soon as early ones, to 1 foot apart. Pay particular attention to the early sowings, the Turnip-fly or beetle being very prevalent in seasons like the present. If the ground be dry, afford water to the drills before sowing, and again when the young plants are about to be thinned, if no rain fall. Dust the plants with fresh soot, or soot and wood-ashes in the early morning as a precaution against the fly. Excellent varieties will be found in Dobbie's Model, White Stone, Chirk Castle, and Veitch's Red Globe—the last two for late use; and of yellow Turnips, Golden Ball and Sutton's Yellow Perfection.

Maize or Indian Corn.—Sow the seeds singly in pots in loamy soil, and place in a temperature of 50°, choosing the varieties Extra Early Tom Thumb, Crosby's Early Sugar, or Moore's Early Concord, and grow them on under glass till the end of the month of May, when, being hardened off, they may be planted 2 feet apart in a warm part of the garden. It does no harm to Maize to remove some of the leafage if it be very abundant. During hot weather water is beneficial. For cooking, the culms should be gathered when of full size, and the enveloping sheath still quite green.

Sorrel.—Remove the flower-stalks as they appear, and thin out seedling plants.

Savoy.—Seeds may be sown again of Drumhead, Dwarf Green Curled, and others, for winter supplies.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Herbaceous Perennial Borders.—Most of the plants having by this time appeared above the soil, let it be afforded a good soaking with clear water, unless rain fall heavily, the soil having become very dry, and the surface caked. The day following, the border should be hoed, then in the intervening spaces sow such summer annuals as Sweet Peas, Mignonette, Candytuft, *Linum grandiflorum*, *Nemophila* in variety, *Godetias*, &c., which have a good effect, and form a carpet or ground-work to the taller-growing plants. The weaker shoots of Delphiniums, Phloxes, and others, should be removed from the stools in order to strengthen those that remain. Sow at wide intervals at the back of the borders, seeds of the tall Sunflowers, and in the front the dwarf variety, these being very effective plants in the early autumn. Lily-bulbs may still be planted.

Bedding Begonias.—The tubers of these plants, if they were placed in a mild warmth as advised, will now be in a fit condition for potting or planting-out in frames. If the latter method has, from necessity, to be done, the tubers should be planted about 1 foot apart in a mixture of leaf-mould, sand, and decayed manure, keeping the frames close for a week or two until the roots have begun to penetrate the soil; then gradually admit air on fine days, thoroughly hardening them off before planting-out, and affording a spraying with a fine-rose water-can in the afternoon if the day is warm. The plants from seed sown in February last, being now of a good size, should be kept growing, potting them as they require it, and taking great care not to afford water very freely or the soil may become sour.

General Remarks.—Afford newly-planted shrubs and trees abundant root watering, and spray the tops on warm evenings. Newly-planted Rhododendrons, and all other American plants, should receive particular attention in this respect, east winds having dried up the moisture in the soil to an excessive degree. Take note of any early spring-flowering subjects requiring to be shifted in the autumn, as it is only by paying attention to these details at the different seasons that the planting of a garden can be so managed as to afford gratifying effects at all seasons.

Auriculas now, or just about to come into flower, should be afforded water, and the ground about them mulched with cocoa-nut fibre refuse.



FIG. 101.—BEDS OF DWARF AZALEAS IN THE ANNEXE, GHENT.

(From a photograph by B. Jacobs & Cie., Ghent.)

fieldiana, the autumn-flowering labiate, and the different varieties of *Lælia elegans*, are either commencing to root from the last made pseudo-bulbs, or sound breaks are pushing from which new roots will shortly appear. Such plants may, if they need more root-room, be safely repotted, as the young roots will quickly establish themselves in the new material. The compost should consist of good fibrous peat and sphagnum-moss in equal proportions, freely mixing with it some thick crocks or bits of charcoal. Avoid using pots larger than the plants require. Keep the plants well above the pots, and use sufficient stakes to hold them firmly in their places. Pot moderately firmly, but not so hard as to prevent the water from passing rapidly through the compost. The pots should be three parts filled with drainage materials, over which it is usual to place a layer of sphagnum-moss. When the plants have been repotted, stand them in a moist shady part of the *Cattleya*-house, and for a few weeks keep the compost rather on the dry side. *C. Lawrenceana*, when it has finished flowering, should be kept comparatively dry. Immediately that root-action has commenced, the plants may be repotted. The sweet-scented *C. Schroderæ* is also in bloom, and when the flowers fade it will require identical treatment. *C. Moesæ*, *C. Mendelii*, *C. Schilleriana*, *C. Skinneri*, *C. Warneri*, *Lælia purpurata*, *L. tenebrosa*, and the various congeneric hybrids that are sending

now in full growth, will require plenty of root-moisture until growth is completed. A cool shady position in the intermediate-house is the best place for them.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

Asparagus.—The keen frosts which have frequently occurred of late damaged many of the heads as they were coming through the ground where no protection was afforded with bracken, clean straw, &c. To prevent future loss from this cause, let the beds be examined daily, cutting all heads that range from 3 to 4 inches above-ground. Flower-pots (48's), with the hole plugged with a bit of clay, offer good protection, and are easily applied, covering one, two, three, or more heads under each.

Celery.—In order to have fine heads of early Celery, the trenches should be prepared betimes, affording a space of 4 feet from centre to centre, and making them 2 feet wide, and 9 inches in depth. Manure in a half-decayed state must be freely used, i.e., the trenches may be half-filled, and just burying it by digging, if the lower stratum of soil be of good quality; otherwise, shovelling soil from the sides of the trenches for this purpose. Before planting, allow the stuff to settle somewhat,

APPOINTMENTS FOR MAY.

TUESDAY,	MAY 3	Scottish Horticultural Association, Meeting.
THURSDAY,	MAY 5	Linnean Society, Meeting.
FRIDAY,	MAY 6	Royal Botanic Society, Lecture.
SATURDAY,	MAY 7	Royal Botanic Society, General Meeting.
TUESDAY,	MAY 10	Royal Horticultural Society's Committees. Somersetshire Agricultural Society, Show at Weston (3 days).
FRIDAY,	MAY 12	Royal Botanic Society, Lecture.
MONDAY,	MAY 16	Devon County Agricultural, Show at Newton Abbot.
WEDNESDAY,	MAY 18	York Florists' Exhibition.
FRIDAY,	MAY 20	Royal Botanic Society, Lecture.
SATURDAY,	MAY 21	Royal Botanic Society, General Meeting.
TUESDAY,	MAY 24	Linnean Society (Anniversary).
WEDNESDAY,	MAY 25	Royal Horticultural Society's Show in the Temple Gardens (3 days). Bath and West of England and Southern Counties Society's Exhibition at Cardiff (5 days).
FRIDAY,	MAY 27	Royal Botanic Society, Lecture.

SALES FOR THE ENSUING WEEK.

MONDAY,	MAY 2	Clearance sale of Plants, Herbs, Carts, Furniture, Greenhouses, Piping, &c., at the Pond Lane Nursery, Clapton, by Protheroe & Morris.
TUESDAY,	MAY 3	Greenhouse Plants, Hardy Perennials, Calceolarias, Gladioli, &c., at Protheroe & Morris' Rooms.
WEDNESDAY,	MAY 4	Japanese Lilies, Palms, Carnations, Gladioli, Bedding Plants, &c., at Protheroe & Morris' Rooms.
FRIDAY,	MAY 6	Palms, Border Plants, Bulbs, &c., at Stevens' Rooms.
		Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—51.7°.

ACTUAL TEMPERATURES:—

LONDON.—April 27 (6 P.M.): Max., 59°; Min., 50°.
 PROVINCES.—April 26 (6 P.M.): Max., 56°; Eastern Counties; Min., 43°; Aberdeen.
 Mild, light rain; thunder in places.

AMONG the most remarkable exhibits at Ghent was a series of plants grown under the influence of certain manures, and varying in composition according to the particular plant. The composition of the manures is deduced from the analyses of many hundreds of plants, and we believe these analyses, probably, far the most numerous ever undertaken in the case of garden-plants, will shortly be published in full. The manure has the form of a fine powder enclosed within a metallic-wrapper, and firmly compressed into the shape of a cartouche or capsule, cylindrical in form, about $\frac{3}{4}$ inch across, and $\frac{1}{2}$ inch in depth (fig. 102). It is simply thrust into the soil of the pot to a depth of $\frac{1}{2}$ or 1 inch, and allowed to remain. After a time it is found that the fertiliser gradually disappears, and at length nothing is left but the little pill box-like wrapper, which originally contained the mixed fertilising-powder.

The results, as shown, were certainly remarkable. Two plants of each kind that had been thus fed were shown one on either side of a plant of the same age, which had received no dose of fertilising-powder, and the difference in such case was very noticeable.

The main feature of these experiments consists in the separate analysis of each plant, so that the manure applied is compounded according to the composition of the plant itself. It may be objected that one analysis of each plant is not sufficient to furnish any accurate basis. The analyses, however numerous, only give the composition of the dead plant at the time the analysis was made. This is a matter of prac-

tical moment, because the requirements of the plant during the growth of the vegetative organs may be, and are, different from those experienced by the plant during the production of flower, and, still more, of reserve matters in the seed.

Another feature of the experiments is the slow and gradual way in which the fertiliser is made to act. The moisture of the soil penetrates slowly and gradually between the folds of the wrapper, and the plant thus gets the benefit of rich nutritive food, applied gradually, and consumed slowly. It is not the first time we have had the opportunity of referring to M. TRUFFAUT's experiments, and they were described by Mr. GEORGE L. PAUL in our number for October 23, 1897, p. 284. At Ghent, the experiments were shown, so that those who ran might read. It is obvious, however, that a more leisurely examination of the results would be amply repaid. For the following details we are indebted to M. TRUFFAUT:—

Anthemis.—The plants shown by M. Truffaut were struck from cuttings made on January 5, 1898. One kilogramme of *Anthemis* contains 3.10 grammes of nitrogen, 0.26 gr. of phosphoric acid, 2.35 gr. of potash, and we applied to them a fertiliser containing 13.4 per cent. of nitrogen, 8 per cent. of phosphoric acid, and 7.20 per cent. of potash, by means of two metallic capsules. The treatment commenced on February 20, 1898.

Asparagus tenuissimus.—The plants exhibited were raised from cuttings made last September. One kilo. of *Asparagus* contains 5.44 gr. of nitrogen, 2.09 gr. of phosphoric acid, 5.09 gr. of potash. The manure



FIG. 102.—M. TRUFFAUT'S ARTIFICIAL MANURE CARTRIDGE.

applied consisted of 13.4 per cent. of nitrogen, 8 per cent. of phosphoric acid, and 5.80 per cent. of potash, contained in two capsules. The treatment commenced on January 15, 1898.

Calceolaria.—These were raised from seed. One kilo. of *Calceolaria* contains 1.73 gr. of nitrogen, 0.26 gr. of phosphoric acid, and 2.85 gr. of potash; we therefore used a manure consisting of 7.20 per cent. of nitrogen, 9 per cent. of phosphoric acid, and 7 per cent. of potash, in 3 cartridges or capsules of 6 grammes. The treatment commenced Feb. 15, 1898.

Corypha australis.—The treatment of the plants began in July, 1897. One kilo. of *Corypha* containing 4.39 gr. of nitrogen, 0.73 of phosphoric acid, 1.80 gr. of potash. The manure applied contained 10.20 per cent. of nitrogen, 7 per cent. of phosphoric acid, and 5.80 per cent. of potash in 4 capsules.

Cocos Weddelliana.—The treatment of the plants commenced in November, 1897. One kilo. of *Cocos* containing 5.79 gr. of nitrogen, 0.34 gr. of phosphoric acid, and 5.5 gr. of potash. The manure applied contained 10 per cent. of nitrogen, 7 per cent. of phosphoric acid, 5 per cent. of potash, in 2 capsules of 6 grammes.

Dracana Baptisti.—The plants were raised from cuttings taken in December, 1897. The treatment commenced March 1, 1898. One kilo. of *Dracana* contains 3.14 gr. of nitrogen, 0.07 gr. of phosphoric acid, and 3.32 gr. of potash. We applied, therefore, manure consisting of 9.45 per cent. of nitrogen, 3.80 per cent. of phosphoric acid, 7.65 per cent. of potash in two capsules of 6 grammes.

Elargonium.—The plants were raised from cuttings made in October, 1897. Treatment was begun March 1, 1898. One kilo. of *Elargonium* contains 3.50 gr. of nitrogen, 3.27 gr. of phosphoric acid, 2.74 gr. of potash. We applied manure containing

8.60 per cent. of nitrogen, 8.60 per cent. of phosphoric acid, and 8 per cent. of potash in two capsules of 6 grammes.

Hortensia.—The plants were raised from cuttings made in June, 1897. Treatment commenced February 20, 1898. One kilo. of *Hortensia* contains 7 gr. of nitrogen, 1.48 gr. of phosphoric acid, and 3.35 gr. of potash. We applied 11.5 per cent. of nitrogen, phosphoric acid (quantity obliterated), and 5.9 per cent. of potash in three capsules of 6 grammes.

Kentia Belmoreana.—Treatment commenced June 10, 1897. One kilo. of *Kentia* contains 2.92 gr. nitrogen, 0.47 gr. phosphoric acid, and 1.44 gr. of potash. We applied 12 per cent. of nitrogen, 7 per cent. of phosphoric acid, and 5.80 per cent. of potash in four capsules of 6 grammes.

Pandanus.—The treatment of the plants shown began June 10, 1897. One kilo. of *Pandanus* contains 2.26 gr. of nitrogen, 0.40 gr. of phosphoric acid, and 1.37 gr. of potash. We applied a mixture containing 10 per cent. of nitrogen, 7 per cent. of phosphoric acid, 5.80 per cent. of potash, in four capsules of 6 grammes.

Pteris Wimsettii.—Treatment began February 25, 1898. One kilo. of *Pteris* contains 2.27 gr. of nitrogen, 0.22 gr. of phosphoric acid, and 1.32 gr. of potash. We applied a mixture containing 9.40 per cent. of nitrogen, 3.80 per cent. of phosphoric acid, and 7.50 per cent. of potash, in two capsules of 6 grammes.

Results.—1. In no case did the use of manures give unfavourable results. 2. As a general rule, the plants treated are greener, and have firmer tissues, and a more abundant and earlier blooming season than have others not treated.

GHENT EXHIBITION.—In our last issue we were enabled to give illustrations of almost all the "New Plants" exhibited on this occasion. To-day we give representations of three of the most important groups, full descriptions of which were given in our report last week.

LINNEAN SOCIETY.—The next meeting of the Society will be held on Thursday, May 5, at 8 P.M., when the following papers will be read:—Sir JOHN LUBBOCK, Bart., M.P., F.R.S., on some "Spitzbergen Collembola." Miss ETHEL BARTON, on the "Structure and development of Soranthera." Mr. J. T. CUNNINGHAM, "The species, the sex, and the individual."

EXHIBITION AT LYONS.—The town of Lyons has decided to organise an international horticultural exhibition, to be opened on September 1 of this year. M. ANTOINE RIVOIRE is the President, M. CONSANÇAT is Secretary, and M. ROZAIN-BOUCHARLAT is the Assistant-Secretary.

RATING OF NURSERIES IN IRELAND.—At a meeting of the Council of the Royal Horticultural Society of Ireland on April 14, the following resolution was adopted:—"That this Council of the Royal Horticultural Society of Ireland desire to urge on the City and County of Dublin Parliamentary representatives to endeavour to alter the proposed Local Government Bill to the extent of including all agricultural lands in urban districts, as well as rural districts, in the provisions of the Bill. That copies of this resolution be forwarded to the above members of Parliament."

THE SUPERIOR QUALITY OF BRITISH ARTIFICIAL MANURES has triumphed over the attempts of the Franco-Belgian syndicate to close French markets to them. During 1897, the British manures imported into the agricultural district of Cherbourg held their own, and maintained their prices, while the Franco-Belgian firms were selling at a loss, several of the firms breaking down under the strain. The Continental superphosphates in many cases proved unsatisfactory, there being a general complaint of the uneven quality of manures from Germany, Belgium, and the north of France, the percentage of phosphoric acid not being uniform, and could therefore not be depended on. As the use of artificial manures for pasture, Potatoes, and market gardening is gradually extending in the district, an advance may be expected in this branch of British imports. *Pharmaceutical Journal*.

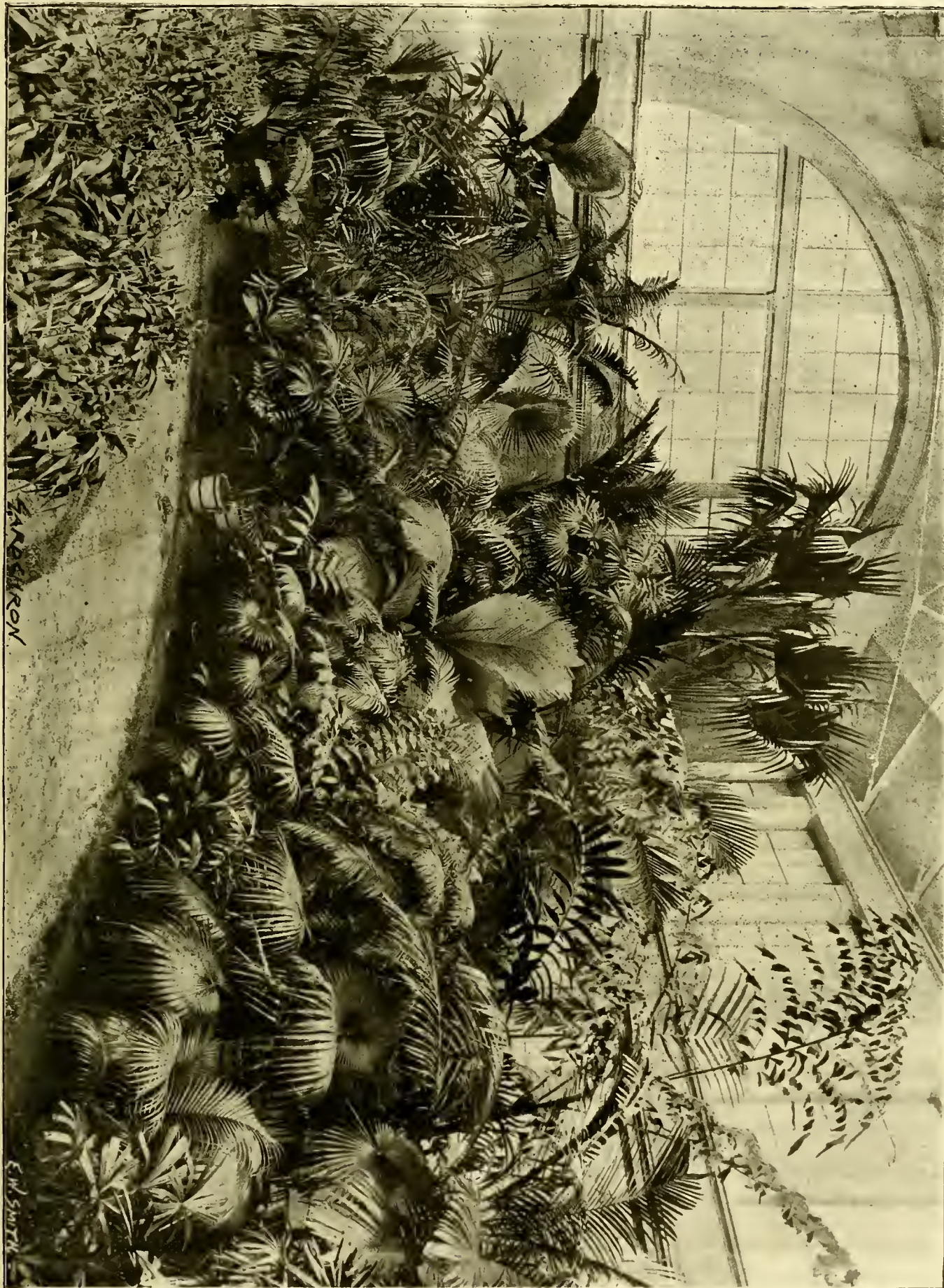
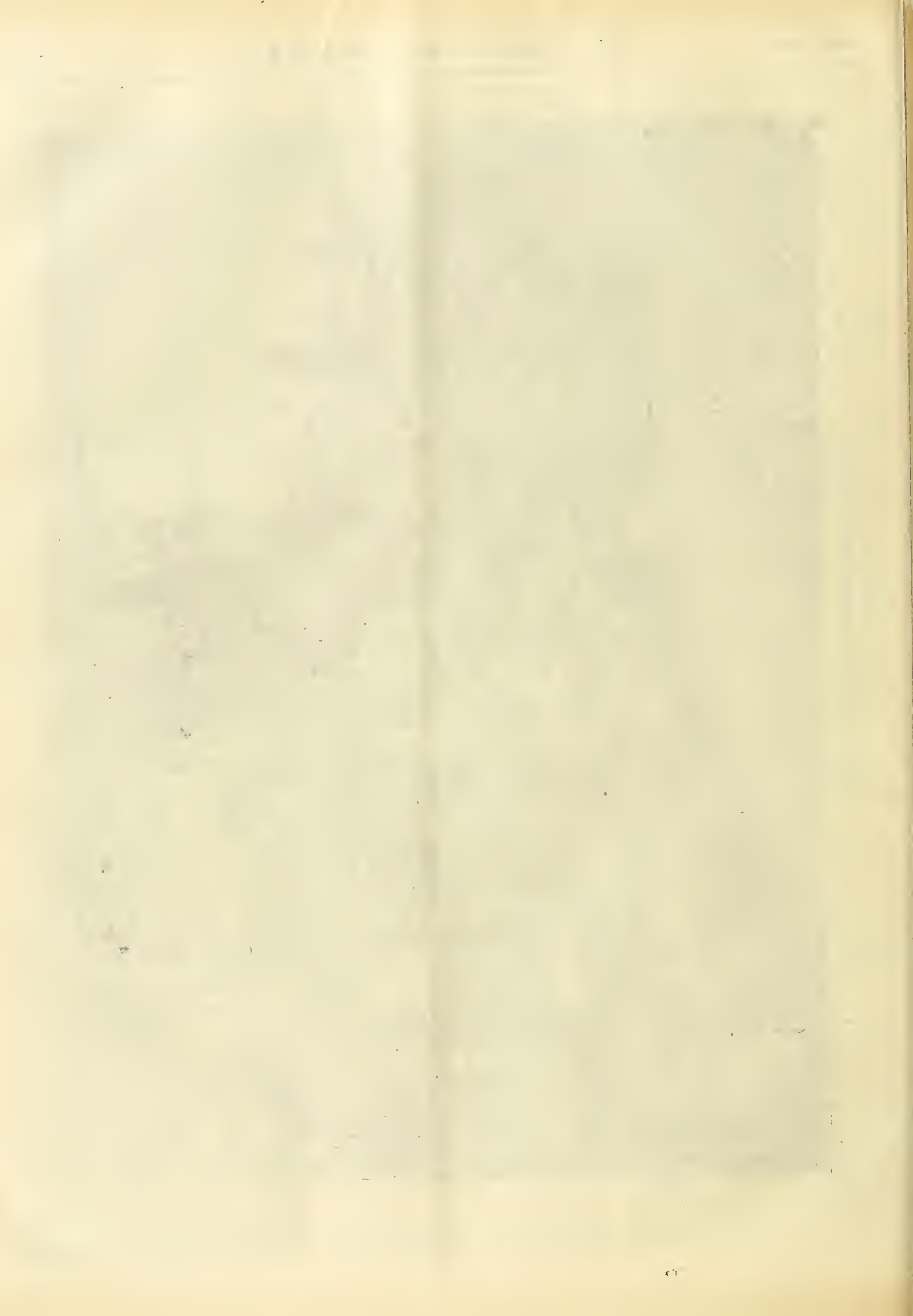


FIG. 103.—GROUP SHOWN BY THE SOCIÉTÉ HORTICOLE GANTOISE, AT THE GHEENT QUINQUENNIAL. (SEE P. 250 OF OUR LAST ISSUE.)

(From a photograph by B. Jacobs & Cie., Ghent.)



FLOWERS IN SEASON.—As showing how admirable is *Heuchera sanguinea* when grown in a pot for glasshouse decoration, Mr. PARKS, the gardener at Whittington Hall, Chesterfield, sends a capitally coloured bunch of the blossoms. Whilst making use of this plant in the spring flower-garden, in obedience to the dictum of the late W. INGRAM, of Belvoir Castle, gardeners lose sight of the fact that *Heuchera sanguinea* is an ornament to the greenhouse at this season. The flowers last a long time on the plant, and when cut and placed in water. From Mr. W. A. COOK, head gardener at Compton Bassett, have come flowers of double *Cineraria*, in half-a-dozen shades of colour, the heads globular, with no appearance of a disc, unless the florets are parted so as to disclose. The flowers, at a cursory glance, remind one of the *Globe Amaranth*, and possess equal decorative value. The sender remarks on their usefulness as cut flowers for filling *jardinières* and small vases, and that his best lot was in full beauty in February. Our readers would be glad to know his method of raising and cultivating the variety.

MESSRS. J. VEITCH & SONS, LTD.—It is interesting to note that growing evidently out of the great expansion proceeding in a great business, this eminent firm has recently purchased some 50 acres of land at Feltham, Middlesex, for the varied purposes of their trade. The land hitherto has been purely agricultural. It is of a yellowish loam, chiefly on a bed of sandy gravel, and if in time it becomes a fruit-tree nursery, should produce first-rate stuff. Naturally the occupation of this large portion of land in the parish has aroused much local interest, as it will henceforth need a very large amount of local labour as compared with what was employed upon it previously. Apart from that, a good nursery in a locality seldom fails to excite emulation in gardening, to arouse in it greater interest, and in that way also create greater trade.

SUBSTITUTION BRANCHES.—M. AUGUSTE BOIRIVANT has been studying the changes which occur when the terminal shoot is destroyed, and a lateral one is made to take its place, or takes its place spontaneously. We cannot give the details in this place, but we may say in brief that when a lateral shoot replaces a terminal one, it undergoes modifications of structure and appearance which cause it to resemble more closely the branch it supplants than the branch from which it has proceeded. We trust M. BOIRIVANT will continue his researches, as there are many plants which will not or cannot be induced to form a "leader" when the original one is destroyed. If we knew more of the structure of these plants, *Abies amabilis*, for instance, we might be able to remedy the defect, where now we are unable to do so.

CALCUTTA BOTANICAL GARDENS.—Surgeon-Major D. PRAIN, Curator of the Herbarium, is gazetted Superintendent of the Royal Botanic Garden, Calcutta, of the Lloyd Botanic Garden, Darjeeling, and of *Cinchona* cultivation in Bengal; also Government Quinologist and Director of the Botanical Survey of India, *vice* Sir GEORGE KING retired.

THE GROWTH OF THE CELANDINE.—The period of active growth in the common *Celandine* (*Ficaria ranunculoides*) extends from September to May. During the whole summer the plant is, for the most part, reduced to a certain number of roots, swollen, and attached to a short rhizome. In September, one or more buds develop and yield the leaves, the blades of which then cover the surface of the soil. From the end of December the flower-buds appear and expand in succession until April. Towards the end of February new roots are formed, distended, and filled with nutritive matters, while the old ones are gradually absorbed and wither. In May, the leaves dry up, the new roots entirely replace the old ones, the activity of the plant slackens. In the course of the evolution of the plant, starch is transformed into dextrine, afterwards into non-reducible sugar, under two circumstances—1, in May and June, when activity is lessened, then the transformation stops at non-

reducible sugar, which is kept in reserve; 2, from October, when the reserves have been utilised, but then the non-reducible sugar drawn from amylaceous materials yields, in its turn, glucose, which is immediately assimilable. Matters at this period advance as in other plants with a store of starch. Between the two phases, about the month of August, an inverse transformation proceeds, and part of the sugar is again resolved into starch. Such are the conclusions arrived at by M. LECLERC DU SABLON, and published in the *Comptes Rendus*.

THE OPENING OF KEW GARDENS.—Appended are the regulations at present in force for the admission of artists and students to the Royal Gardens in the morning prior to the admission of the public. These privileges may be seriously curtailed if the sight-seeing public is admitted at an earlier hour than at present. The first consideration is, of course, the proper maintenance of the garden, and the unfettered performance of the work done in it, practical or scientific; next the interest of students and practical gardeners, last of all the claims of the general public:—

Royal Gardens, Kew.—Regulations for the admittance of artists and others in the forenoon.

"Persons desiring access to the Royal Gardens for the *bona fide* purpose of drawing, sketching, photography, or special study, can obtain a card of admission, available during morning hours, on addressing to the Director a written application, stating the object for which such admission is desired. If the application is approved, the card will be sent by post to the applicant's personal address. The privilege of admission is strictly personal to the holder of the card, and it is not transferable.

"A card of admission cannot be issued to admit a class or a party collectively.

"The Gardens may be entered by persons to whom a card is issued, either by the Victoria Gate, opposite the Kew Gardens Railway Station, or by the private gate adjoining the Curator's office [Kew Green]. The holder of the card must sign his or her name in the book kept for the purpose at the gate-keeper's lodge.

"Admission may be obtained after 6 A.M. from April to October; after 6.30 A.M. in March, and after 8 A.M. in January, February, November, and December.

"The privilege is not, however, available on Sundays, Christmas Day, Good Friday, or Bank Holidays.

"Persons holding cards may draw, sketch, or photograph in the open air during such hours as the Gardens are open to the public. But drawing or photographing in the houses cannot be permitted after noon of each day, nor can it be allowed to interfere with the necessary cultural work of the gardeners.

"The Staff of the Royal Gardens accept no responsibility as regards the custody of drawing, photographic, or other apparatus.

"By Order, Royal Gardens, Kew. April, 1897."

FLOWERS FROM THE RIVIERA.—The Post Office has put an end to the transmission of flowers by sample-post, on the ground, we suppose, that the flowers sent out are not samples. What then are they? They are not merchandise, but consist for the most part of small consignments sent as presents to friends at home. Occasionally they are specimens sent from one botanist to another. To suppose that any material injury is done to British traders is, to our thinking, absurd, for the recipients would not purchase the flowers here even if they could. Now, if sent at all, they must be sent by parcel-post.

SAN JOSÉ SCALE.—The Canadian Parliament has enacted a bill precluding the introduction of nursery stock of any kind from the United States, Japan, Australia, and Havana into the Dominion.

THE SURVEYORS' INSTITUTION.—The next Ordinary General Meeting will be held on Monday, May 2, 1898, when the adjourned discussion on the paper read by Mr. H. M. GRELLIER (Fellow), at the meeting of March 21, entitled "Tithe Rent Charge Recovery," will be resumed; and, should time permit, the discussion on the paper read by Mr. THOMAS BLASHILL (Fellow), at the last meeting, entitled "Lessons from Fire and Panic," will be continued. The chair will be taken at 8 o'clock.

NATIONAL CHRYSANTHEMUM SOCIETY.—The annual report and amended financial statement is to hand, in the form of a pamphlet which contains much information useful to Chrysanthemists. The new rules are now published, and they embrace several important modifications from the older ones. There

are to be four exhibitions during next season, on dates already published. In future the Society would do wisely to drop one or two of its shows, and concentrate its efforts upon the events alone that are of use in furthering the objects of the Society. The September show is usually one of Dahlias and Gladioli; the few Chrysanthemums that are staged always suffer in comparison to the brighter-coloured flowers. It is regrettable that the November show will again clash with a meeting of the committees of the Royal Horticultural Society at the Drill Hall. A list of the Fellows of the Society; of affiliated Societies; and the result of the work of the Classification Committee; together with information respecting the winners of the Society's awards during 1897, are included in the pamphlet.

PUBLICATIONS RECEIVED.—*One and All Gardening*, a popular annual for amateurs, allotment-holders, and working gardeners (Agricultural and Horticultural Association, Agar Street, Strand). This handbook, edited by Mr. E. O. Greening, and including various special articles by proficient writers, is well worth the small cost of 2d., and should be useful to the public, to whom it is addressed.—*Sixty Bedding Designs*, by H. Cannell & Sons, Swanley, Kent. A useful handbook for admirers of formal bedding; as, in addition to the varied designs, it includes lists of the most appropriate plants with which to develop them.—*Durban Botanic Society: Report on Natal Botanic Gardens for 1897*, by J. Medley Wood, Curator. We are pleased to find that this is in every way satisfactory, there having been "no serious losses during the year, and the plants, both in garden and nursery, all that could be desired." The acclimatisation, manuring, and anti-disease experiments made with various plants were carried out with enterprise, and are carefully reported.—From the same source comes the *Report for 1897 of the Colonial Herbarium, Durban*, and this is an equally gratifying record of labour and progress.—*Proceedings and Journal of the Agricultural and Horticultural Society of India*, Oct. to Dec., 1897. This gives a list of plants and of publications interchanged with kindred societies. Also interesting notes on drought, and how to cope with it; and on the history and value of the Orange and the Lemon.—*Bulletin of the Botanical Department, Jamaica*, January, 1898, with an article on Public Gardens and Plantations of Jamaica, Notes on Orchids, and Synoptical List of Ferns.—*Agricultural Journal of the Cape of Good Hope*, March 17, 1898. Noteworthy papers are those on Beet-Sugar Industry in California, Wheat Crops of the World, Weeds and their Destruction, and Orchard Soil Cultivation. Stock Farming Matters are also dealt with.—*Some New Indo-Malayan Orchids*, by G. King and R. Pantling (Calcutta). These reports on various novel species of *Malaxides*, *Epidendrea*, *Vandea*, *Neottia*, *Goodyera*, and *Ophrydæ* are reprinted from the *Journal of the Asiatic Society of Bengal*, and are welcome in their present more accessible form.—*Annual Report of the Secretary for Agriculture, Nova Scotia*, 1897. This publication contains the usual articles on technical subjects, and useful abstracts of reports from the proceedings of affiliated agricultural societies which are thus brought together for comparison and study.—*Transactions of the Massachusetts Horticultural Society for 1897*: The contents include notes of meetings, with papers on "Tropical Horticulture," "Structure and Classification of Mushrooms," "The Chrysanthemum," "Plant Beauty," "Sweet Peas," &c. From the Michigan State Agricultural College Experiment Station, Horticultural Department: *Bulletins No. 151*, Raspberries, Blackberries, and Grapes; No. 152, *Report South Haven Sub-Station*, 1897; and No. 153, *Vegetable Tests*, 1897.—*The Fern Bulletin*, edited by W. N. Clute (Binghamton, N.Y., U.S.A.), Spring (quarterly) part, with well-illustrated papers on "Ferns in the New Jersey Pine Barrens," "Bulblets of *Lycopodium lucidulum*, *Equisetum scirpoides*," "*Pellaea atropurpurea* in Cultivation," "Fern Study in Great Britain," and "Notes for the Beginner." The Bryologist is a department of the Bulletin devoted to Mosses.—*Bulletin de l'Association pour la Protection des Plantes*, March, 1898. With no

space to mention, all the matters herein dealt with, and relevant to the title of the pamphlet, attention may be drawn to the article "Les Beaux Arbres de la Suisse," the illustrations to which are very attractive.

HOME CORRESPONDENCE.

SUBSCRIPTIONS, AND THE WHEREWITHAL TO PAY THEM.—In these columns there often appear reports and other communications referring to the Gardeners' Royal Benevolent Institution and Gardeners' Orphan Fund, and to the lack of support from the gardeners. In your issue of April 9, there appears the following:—"The committee trust that every well-wisher of the first-named Institution will note that the Victorian Era Fund is still open, and donations will be thankfully received." If every well-wisher were able to contribute I have little doubt that the amount required would soon be forthcoming; but unfortunately such is not the case, for there are many who, like myself, have begun at the bottom of the ladder, and steadily worked upwards till we have reached the top, only to find that the position and title of head gardener is too often lacking in the means to properly support it. It is my present lot to be in the apparently desirable position of head gardener under a Yorkshire City Corporation; and having, when my rent is paid, the princely income, for seven days' work, of 21s. 3d. with which to purchase firing, vegetables, &c., and keep a wife and child. I saw it suggested a few weeks back that circulars should be sent round to gardeners requesting subscriptions, but I trust they will pass me by, for I can already feel my lowly position acutely enough when seeing the familiar names published now and again in your columns with a good subscription attached to them. My good wishes for such a noble institution as the Gardeners' Royal Benevolent are as sincere as those of any subscriber can be; but until my lot brightens, I trust some wealthy employer will dip a little deeper into his pocket to make up what is lacking on my side. C. C.

TURNIP-FLEA (HALTICA NEMORUM).—This little shining black beetle is found in myriads in dry weather eating holes in the early leaves of Turnips, soon devastating whole fields and beds in the garden if remedies be not taken against it. In gardens a crop of Turnips may be saved by frequently dusting the young plants early in the morning when the seed leaves are damp with dew with a mixture of soot and lime, or wood-ashes, but it is of very little use if not well followed up; of course, a rapid growth is very essential, therefore every encouragement should be given the young seedlings. There is an advantage in filling in the drills when the seed has been sown with rich soil, Moule's closet manure or other, first affording water in the drills, as by so doing the plants make rapid growth. If the weather proves dry after the seed has germinated, afford water frequently, and dust them with soot and lime before the leaves get dry. *H. Markham, Margate.* (Miss Eleanor A. Ormerod, in her *Manual on Injurious Insects*—chapter on *Haltica nemorum*, recommends that all plants that the beetle frequents, viz., Shepherd's Purse, Charlock, and Jack-by-the-bledge, should be destroyed, the beetle often being supported by these plants in the spring till the Turnips appear; also all lumps of manure from the stable and cowshed should be buried or covered with soil, as these form hiding and breeding places for the insects. Ed.)

WINDOW-PLANT CULTIVATION.—A recent post brought me an enquiry from a New York publishing house as to the existence in London of any society for the promotion of the culture of plants in windows. It was not without feelings of regret I had to reply that I have no knowledge of the existence of a society taking up this special line of work. A few years ago an annual exhibition of plants grown in windows in Westminster was held in Dean's Yard, but I am not sure if that is continued. The Rev. H. Webb-Peploe used to have shows in Chelsea in connection with the Mission Rooms attached to his church in Onslow Square, and if any of these are still held they are not heard of. There were formerly exhibitions in Spitalfields, Whitechapel, and other places in the east, but I fear much the largest part of them have ceased to exist. The once famous City Flower Shows, so warmly promoted by the late Rev. William Rogers, and which were always highly successful, were abandoned some years before his death. The People's Palace Horticultural

Society provides classes in the schedules of prizes of all its exhibitions for plants grown in windows, and there is an annual inspection of window-boxes in the more congested parts of the East End, and the judges award prizes. The Mansfield House Settlement at Canning Town, holds a flower-show once a year, at which plants grown in windows are largely exhibited, and attempts are made to interest the young girls and lads employed in the factories about there in the culture of plants. R. D. [There is, or was, a window-gardening society in Mayfair. Ed.]

CATTLEYS AND OTHER ORCHIDS.—I for one desire to record my thanks and appreciation to Mr. G. Lee for his excellent lecture on the "Culture of Cattleyas," which appeared in two recent issues of the *Gardeners' Chronicle*, for, according to my fourteen years' experience amongst Orchids, it is more to the point than anything of the sort I have ever read. Those Orchids of which I now have the charge are cultivated in a plant-stove of three-quarters span, running east and west (it would be preferable if it ran north and south). When *Dendrobiums* and *Cypripediums* are placed with a general furnishing stock of hothouse plants, one may understand how easy it is for the Orchids to deteriorate more or less after a few years. It is, therefore, most gratifying to find Mr. G. Lee's opinion on the point correspond with my own, and especially that which he says about the application of the scrubbing-brush, soft-soap, and water to imported plants; and also to keeping the materials separate when potting. A. J. Nightingale.

SPARROWS AND FLOWERS.—Some observations that I have recently made in my garden, may perhaps throw some light upon the reason for the annoying depredations of sparrows. The flowers attacked are Primroses, Polyanthus, Hepaticas angulosa and triloba, Carnations and Crocuses. The Primrose and Polyanthus are bitten off just at the junction of pedicel and flower; only the petals of *Hepatica angulosa* and triloba are plucked off before the flowers are properly expanded. The Carnations are regularly bitten off at the tips of the leaves. At first I thought that the Carnation-leaves were bitten off by a shrew-mouse (of which one existed in the garden and ate the Freesia bulbs, and attacked some *Lobelia fulgens* roots in a cold frame), but on examining the leaves I found they were not neatly nibbled off, but pulled off, leaving a bruised part; and on watching I caught the sparrows tugging at the tips of the leaves. It occurred to me that the tips of the leaves might be sweet, and on tasting them I found that they appeared to be slightly so. The fact that frost often sweetens vegetable structures containing starch, suggested that this might be a possible explanation, coupled with the fact that it is invariably on the approach of a colder atmosphere that the birds attack the flowers. As soon as the plants flower freely, they are no longer touched. Whether this is because the flowers have then utilised the sugar present, or whether because in attempting to pick one flower the next touches them, and perhaps startles them, as it might in the Polyanthus, I do not know; but think it probable, the former is the correct explanation. I notice that the shady side of the garden, where the Primroses and Polyanthus do not get much light or warmth, and the plants are not vigorous, is the side almost exclusively attacked. The yellow Crocuses are so invariably attacked in cold weather that I grow only the white and deep blue, which they do not touch. When in full flower, and in a sunny situation, I have noticed even the yellow Crocuses are not much injured, if at all. Black thread over the flowers, crossing diagonally, is the only remedy I have found of avail in protecting the blossoms. E. M. H.

COMBATING THE FOREIGNER.—It is evident that our home caterers of flowers, fruit, and vegetables, for market purposes, are neither frightened by the bogey of foreign competition, or by the recent decision of the High Court of Appeal, in relation to the rating of glasshouses, for the erection of these goes on apace in all directions. Would that it were possible to obtain annually reliable statistics as to the area of glasshouses, for market purposes, erected in the kingdom each year. Passing down the Windsor branch of the South Western Railway the other day, my attention was attracted to two new erections in my old parish of Feltham, Middlesex; the first a lofty church-tower and spire, which is costing several thousands of pounds, and will be absolutely non-reproductive; the other, a little farther down, is a huge mass of glasshouses, costing far less than the other erection, and which on recently occupied land is being built by an enterprising market grower, and

a member of an old Isleworth family, Mr. A. W. Smith. This huge group of glass when complete will consist of twenty houses, each 30 feet wide, and 600 feet long; that was the measurement given to me. Thus we see here in one block—only assuming the length of each house is 600 feet—over 2 miles of span-house 30 feet wide. This is literally glassing over the land, so as to give to it something of that summer-like character which naturally characterise the southern portions of the European continent and islands. What labour will this area of glass provide? What will it furnish in the way of food for the people? How much will it add to the health and happiness of the community? At Isleworth I learn Mr. Smith's brother has lately erected an equally large area of glass, and both will be shortly engaged in doing their best to produce early products, such as the foreigner has the chief monopoly in producing just now. This is the way to combat foreign competition, and it also serves to show that the men who have long experience in the market trade realise that there is money in it yet, for they do not sink their thousands of pounds in ventures of this description without being well assured that it will repay them. Talking with that well-known gardener, Mr. Denning of Hampton, the other day, he told me that all about his district glasshouses for market produce had during the past few years extended enormously. Hampton seems to be *par excellence* the market-growers' quarter of the metropolitan area. There were then some eighty or more of these market establishments in that district, and others were cropping up at the rate of almost one each week. This vast glass expansion must open a wide field for the energies of the Nurserymen and Market Gardeners' Hailstorm Insurance Society. One wonders how many of the persons now engaged in this great industry ever think of the efforts of those who many years ago laboured so hard to remove the tax on glass. Do they ever in their festive gatherings drink a toast solemnly to the memory of the dead and living reformers, without whose aid this vast expansion of glasshouse industry never could have been? However, it is satisfactory to note how practically our own people are striving to overcome in the production of food elements foreign domination. It is so much wiser and nobler than is sitting down to white. A. D.

LAW NOTES.

FAILURE OF A PENZANCE FLORIST.

THE creditors of Thomas Fox, nurseryman, Buryas Bridge, and 65, Chapel Street, Penzance, first met at Truro, 12th inst. The meeting was then fixed for the 21st inst. According to the debtor's statement, £1547 is due to 55 unsecured creditors, and assets amount to £800, including stock-in-trade, £250; trade fixtures, &c., £400; growing crops, £50; furniture, £50; other property, £45; and book debts estimated to produce £5. The usual deductions leave a deficiency of £780. Debtor attributes his failure to want of capital and inexperience of nursery business, loss of the whole stock for one year by arsenical poisoning, and the complete failure of last season's fruit and early Tomatoes. Debtor states that he commenced business as a nurseryman and florist in 1894 without capital, having been previously employed as an insurance agent. Debtor was, in the opinion of the Official Receiver, greatly to blame for embarking in a business in which he had no experience. Having regard to the time the debtor had been in business, and to the very large deficiency, he considered his affairs would require strict investigation. *The Western Morning News.*

FAILURE OF A POTATO DEALER.

The first meeting of the creditors of Oswald Ignatius Smith, potato merchant, Selby, was summoned for Tuesday, 12th inst., at the York Official Receiver's office. No creditors were then present. The summary of affairs showed gross liabilities, £460 6s. 5d.; deficiency, £457 16s. 5d. The debtor attributes his insolvency to sickness of himself, wife, and family. *The Yorkshire Daily Post.*

DISPUTE IN THE SEED TRADE.—A TREE CABBAGE.

In the Westminster County Court, on Monday, his Honour, Judge Lumley Smith, Q.C., tried the case of *Hewcroft v. Laycock*, in which the plaintiffs,

Messrs. Howcroft, a firm of seed merchants of Hart Street, Covent Garden, sued defendant, a market gardener of Midhurst, Hants, to recover the sum of £21 in respect of seeds supplied to his order.

The plaintiff's claim was admitted, but the defendant set up a counter-claim, in which he sought to recover £18 as damages for loss he had sustained owing to the alleged misrepresentation of the seeds supplied to him.

Mr. George Thomas Laycock was called, and said he was the defendant in the action, and had been in the habit of purchasing seeds from plaintiff for some time past. About a year ago he purchased, among other goods, a 2 lb. packet of Couve Tronchuda, which was a species of Cabbage sometimes used in place of Seakale, and was a plant of a high-class character. In due course seed was planted, but after going to considerable trouble and expense in planting and growing the goods, he found that instead of producing a plant about 18 inches high, with a fine white heart, it ran up to an abnormal length of several feet, and produced nothing but a huge thick stump and a mass of coarse leaves which were totally useless for any purpose whatever. He (defendant) had tried to sell the produce both in Covent Garden and to private shopkeepers, but no one would purchase it at any price.

In cross-examination, the defendant said that the seeds were properly sown in properly prepared ground, and everything that was possible was done to make them a success.

The plaintiff's case was that the seeds were supplied under a non-guarantee clause, and that such clause was inserted in the catalogues and invoices, and also in the *Gardeners' Chronicle*.

On behalf of the plaintiff's case, Mr. Hayward was called, and said he was in charge of the warehouse. All seeds were sold under a non-guarantee clause, not only by their firm, but by all seed merchants. The plant in question was not much in demand, as it was used principally for cattle, and was not an article of domestic use.

His Honour said he should find as a fact that Couve Tronchuda was an edible Cabbage, fit for human consumption, and that the plant (produced), which was the outcome of the plaintiff's seeds, was only fit for cattle. In giving judgment his Honour said he thought the plaintiffs were protected by their non-guarantee clause, and therefore judgment would be in their favour, both on the claim and counter-claim, with costs, but defendant would have leave to appeal.

EVAPORATED VEGETABLES.—According to the *Melbourne Chronicle*, Mr. F. A. Pulleine, of Lobethal, South Australia, is "making a name for desiccated vegetables and fruits; and, although several others are in the habit of evaporating fruits on a large scale, and make a first class article, he is the only one who deals with vegetables during the off-season for fruits. Carrots, Parsnips, and Potatos, are reduced to about one-eighth part of their original bulk and weight; Onions are brought down to one-twentieth part. Reduced thus in bulk and weight, vegetables can be transported to distant parts at a very moderate cost, and they will keep perfectly good for two or three years. When required for use, the articles are soaked in five or six times their weight of water for twenty-four hours, when they are ready for cooking like fresh vegetables."

Obituary.

MR. E. MORSE.—We regret to announce the death of Mr. E. Morse, of the Epsom Nurseries, in his eightieth year. Many of our readers will remember this kindly and enterprising nurseryman, who filled many important posts, and established a large nursery business many years ago at Epsom. This will be conducted in the future by his two sons. The funeral, which took place on Tuesday, 19th inst., was attended by a host of friends and acquaintances of the deceased, some representing the local boards with which he had been for so many years connected.

SOCIETIES.

ROYAL HORTICULTURAL.

APRIL 26.—The usual fortnightly meeting of the Committees of the Royal Horticultural Society was held on Tuesday last in the Drill Hall, James Street, Westminster. There was a very large display of exhibits, and throughout the day the number of visitors was unusually great, the hall at times being uncomfortably thronged. Considerable space and interest was absorbed by the show of the National Auricula and Primula Society, held in conjunction with this meeting. Upon the whole, the Auriculas were not of very fine quality, being rather rough, owing to the weather having been very far from suitable to these plants. A large share of the display was again contributed by the collections of Narcissus, which were even more numerous than on the last occasion. Orchids were shown in quantity; but one of the most remarkable and lovely characteristics of the exhibition were the groups of cut Roses. These were magnificent, and compelled admiration from every point of view. There were several fine collections of hardy plants in flower, beside the usual miscellaneous exhibits of novelties. Following so soon upon the Ghent show, where generally the ornamental foliage plants were so superior to flowering plants, the contrast was very noticeable. In the small Drill Hall there was congregated a much greater profusion of flowers, in proportion to the whole of the exhibits, than was the case in the large and excellent exhibition our Belgian friends were justly proud of. Before the Fruit Committee were two most commendable exhibits—the one a collection of fruits and vegetables, and the other a collection of vegetables alone, both from private establishments.

Floral Committee.

Present: W. Marshall, Esq., chairman, and Messrs. John Fraser, Owen Thomas, Chas. T. Drury, H. B. May, Geo. Nicholson, R. Dean, Geo. Stevens, W. Howe, J. F. McLeod, Thos. Peed, John Jennings, R. B. Lowe, W. Baines, Jas. Hudson, Chas. Jeffries, W. Bain, J. D. Pawle, Chas. E. Shea, J. W. Barr, T. W. Sanders, F. T. Cook, Ed. Beckett, H. J. Jones, D. B. Crane, Geo. Paul, H. Selge Leonard, Geo. Gordon and Harry Turner.

An award of Merit was recommended to a large-flowered variety of *Primula vulgaris*, named Evelyn Arkwright, shown by Mr. J. H. ARKWRIGHT, Hampton Court, Leominster. The original stock of the variety, it is said, was found wild in Dinmore Wood, Herefordshire, in 1887, and comes true from seed.

A fine collection of sprays of varieties of Himalayan Rhododendrons was shown by Sir JOHN T. D. LLEWELYN, Bart, Penllergare, Swansea. They were a remarkable lot of blooms, and all had been cut from plants growing in the woods and shrubberies.

Azalea mollis × *sinensis* hybrids, from Messrs. R. & G. CUTBEAT, were very beautiful. The best varieties were Anthony Koster, Alma Tadema, J. J. De Vink, pale lemon-coloured, with decided spotting on upper petal (Award of Merit); C. Moerschalk, rather small, but densely-flowered, and of rich yellow; Schastopol, pale salmon-rose; and General Dector, very large flower, of distinct orange tint, with very pronounced spotting (Silver Banksian Medal).

Mr. F. Cornish, gr. to the Dowager Lady Bowman, Joldwynds, Dorking, exhibited a mass of flowers of the parasite *Lathraea clandestina* (*Bot. Mag.*, t. 7106).

Trillium grandiflorum album was exhibited as a magnificent specimen, in a 12-inch pot, from Mr. Empson, gr. to Mrs. WINFIELD, Amptill House, Amptill. The plant had presumably been cultivated indoors, and was nearly 3 feet across, with fresh-looking large foliage, and studded closely with large white flowers. A Cultural Commendation was awarded.

Messrs. JOHN PEED & SONS, Roupell Park Nurseries, Norwood Road, London, S.E., made a large exhibit of Cordylines (*Dracenas*), which were staged on the floor. In addition to the coloured-leaved section, which was very well represented, we remarked *D. alba marginata*, Excellent, Snowball, Coulingii, terminalis alba, alba-marginata, Constant, Lemoni, Goldiana, and Sanderiana; all green-leaved varieties with more or less variegation.

Messrs. R. WALLACE & CO., Kilnfield Gardens, Colechester, showed a nice lot of Erythronium flowers, including a distinct pale-yellow flowered variety of *E. revolutum* known as Watsoni. *E. giganteum*, *E. Hartwegii*, and *E. revolutum* were all well shown. Of *Fritillarias* there were fine blooms of *F. meleagris alba*, a small blossom of *F. pudica*, and two plants in bloom of *Lilium roseum* [*Fritillaria macrophylla*], an erect-flowering lilac-coloured species, resembling an Anthericum. The showy *Tulipa Gregii* was also noted in the group.

From Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, came a group of Gynogrammas, among which were remarked *G. grandiceps superba*, *G. multiceps*, *G. Alstoni*, *G. Parsoui*, *G. elegantissima*, and several silver-coloured varieties, as *G. Mayii*, *G. argentea cristata*, and *G. Peruviana argyrophylla*. An Award of Merit was recommended to *Pteris cretica* Summersi, a very pretty variety of the crested *Pteris* (Silver Flora Medal).

A fine new hybrid Polyantha Rose med Psyche was

shown by Messrs. PAUL & SON, Old Nurseries, Cheshunt, who exhibited three plants about 4 feet high of the variety. The flowers are pink, becoming paler with age, about 2½ inches across, very double, and produced in sprays. An Award of Merit was recommended to this variety, and also to the Dawson Rose, another of the Polyantha section, flowers deep pink, single, foliage small. Messrs. Paul & Son also showed variegated plants of *Rosa Wichuriana*, and a new rose-coloured H.P. Rose named J. B. M. Camm.

Mr. JAS. WALER, Thame Nurseries, Oxon, showed as many as twelve dozen blooms of *Maréchal Niel* Roses of capital quality.

Mr. W. RUMSEY, Joyning's Nurseries, Waltham Cross, Herts, made a large display of cut Roses, there being eight boxes requisitioned to exhibit these; and there were upwards of a dozen pretty bunches in bottles. Though the popular varieties *Niphetos* and *Maréchal Niel* were shown in greatest quantity, the varieties represented were very numerous, Baroness Rothschild, Mrs. Rumsey, The Queen, Duchess of Albany, and Marchioness of Londonderry being among those best presented (Silver Banksian Medal).

The group of cut Roses from Mr. GEO. MOUNT, Canterbury, was lovely. It would be next to impossible to flatter the two dozen blooms of Catherine Mermet by any description. In colour they were perfect, and most of them in form also. Hybrid Perpetuals, too, were beyond praise, and those shown with long stems and abundant healthy foliage were effective to the last degree (Silver-gilt Banksian Medal).

The most distinct exhibit of Roses, however, was the very fine collection of blooms of the old variety, Fortune's Yellow, shown from Lord WANTAGE's garden at Lockinge (gr., Mr. Fyfe). The exceeding freeness with which the plants bloom at Wantage was not only indicated by the numerous large, well-coloured blooms shown, but sprays of growth several feet long were also exhibited, and these bore numerous flowers of excellent quality. In the bud state, this old Rose is most enchanting, including shades of Apricot and rose-pink. The stems are generally very slender, and have to be wired (Bronze Banksian Medal).

A group of Anthurium s, and many cut spathes of additional varieties, from Sir TREVOR LAWRENCE, Bt., Burford, Dorking (gr., Mr. Bain), were very interesting and showy. A *Scherzerianum latifolia*, with eleven spathes, was a capital form of this intense-coloured variety. Another variety named Triumphant, with spathes nearly 8 inches long, and beautiful pink in colour, was one of the gems in the group. *Rothschildianum maximum*, with mottled scarlet and white spathes, and another with white spathes; also *elegans*, a much mottled or spotted spathe, with Andraeanum form, were all good. Cut spathes of varieties of *A. Andraeanum* were magnificent, of mammoth size, and the most brilliant colours (Silver Flora Medal).

A group of excellent varieties of *Anthurium Scherzerianum* was also shown from L'Horticulture Internationale, Parc Leopold, Brussels, and a Silver Banksian Medal was awarded thereto.

Gloxinias were shown in a group, with interspersed Ferns, by Messrs. JNO. LAING & SONS, Forest Hill Nurseries, London, S.E., and some of the best varieties so displayed were John Laing, bearing crimson flowers of good form; Mrs. Laing, purple thro-t, with white margins; Lady Tweedmouth, white, with rose-coloured zones; and Lady Edridge, intense purple (Silver Flora Medal).

A fine group of hardy flowering plants was shown by Messrs. PAUL & SON, Cheshunt. There were large clumps of *Doronicum plantaginaceum excelsum*, *Gemma miniatum*, *Adonis vernalis*, *Pulmonaria saccharata*, *Trillium grandiflorum*, the double-flowered *Caltha monstrosa*, *Violas*, several fine varieties of *Aubrietia*, viz., W. Marshall, Frobelli, &c. Rarer plants included *Gerbera Jamesoni*, one of the choicest and most brightly-coloured of hardy plants; *Andromeda tetragona*, and *Bryanthus empetrifolius*. A single-flowered H.P. Rose named Royal Scarlet, was exceedingly vivid.

In addition to the fine collection of Narcissi elsewhere noticed, Messrs. BARR & SONS, King Street, Covent Garden, staged a few hardy plants in flower, including several species of *Primula*, and a few hardy Orchids.

An Award of Merit was recommended to *Richardia Rhodensis*, shown by Mr. J. Jennings, gr. to LEOPOLD NE ROTHSCHILD, Aescot Gardens, Leighton Buzzard. This is another yellow-flowered *Calla*, with spotted foliage, and in all respects appears as vigorous and large-growing as the ordinary white-flowered *Calla*. The flowers are of a rich shade of yellow.

Messrs. JAS. VEITCH & SONS, Limited, King's Road, Chelsea, exhibited plants in flower of *Clonanthus virginicus*, *Deutzia hybrida Lemoini*, and *Rhododendron indicum* var. *Kempferi*, and a pretty bright rosy-red-flowered *Azalea* with moderate-sized blooms. Messrs. Veitch showed, and ere recommended an Award of Merit for *Deutzia parviflora*, a very fine-flowering *Deutzia*, and a Botanical Certificate for *Azaleodendron Edouard André*, another hybrid from *A. mollis* and *R. ponticum*, several of which have been described in these columns. A very beautiful white-flowered *Celmisia coriacea*, and a pretty, silver-spotted, ornamental leaved *Begonia* named *Eudora*, were included in their exhibit.

Messrs. OSMAN & CO., Horticultural Sundrissmen, 132, Commercial Street, London, had a novel exhibit of needlework from the West Indies. Natural Ferns, and other dried plants were woven up into D'Oyleys, lamp-shades, table mats, and such like articles. The work was exceedingly fine, and the effect good. It was stated that the proceeds from the sale of these tasteful novelties will be devoted to charitable objects (Silver Banksian Medal).

Narcissus Committee.

Present: J. T. Bennett-Poe, Esq., in the Chair; Miss Willmott, Messrs. C. R. Serase-Dickens, Jas. Walker, A. Kingsmill, F. W. Burbridge, W. Goldring, Revs. S. E. Bourne and G. H. Eagleheart.

The long drought, with frost, has detracted from the size and substance of the Narcissi this season, and it may be supposed that many of the varieties shown in the trade collections had been received from Holland. This indeed was apparent from the presence of such early kinds as *N. maximus*, long since over in England. The general quality of the flowers was, however, surprisingly good.

Of the professional exhibits the palm, in point of quality and arrangement, must undoubtedly be given to that of Messrs. Pearson, Chilwell, Notts. It is needless to particularise, for most of the best kinds in cultivation were represented by beautifully fresh flowers, arranged without crowding, in light bunches with foliage. Indeed, this group afforded a much-needed lesson in the right presentation of such flowers, and was well worth a higher Award than the Silver Flora Medal adjdged to it.

The same recognition was won by Messrs. Veitch with a large bank of good flowers, which would, nevertheless, have been more effective had half, or a third only, of the material been employed; and the same criticism may fairly be passed upon Mr. T. S. Ware's exhibit.

Messrs. Barr & Sons had, it is superfluous to say, a fully comprehensive collection in all the subdivisions of the genus. Three very fine blooms of *Weardale Perfection* occupied the central place of honour (Silver Flora Medal).

The Rev. G. H. Engleheart, Appleshaw, Andover, again had a stand of select seedlings. One of these, *Will Scarlett* by name, attracted great attention by the extraordinary depth of colour in its broad and solid cup of rich, luminous red. The raiser considers this perhaps his best achievement in high-coloured Narcissi, the plant being broad-leaved and of great vigour (First-class Certificate). He also gained Awards of Merit for *White Lady*, a flower in the way of *Catherine Spurrell*, but larger and better; for *Diadem*, a novel and very striking variety with sulphur division and a broad, flat eye of chrome, edged with a narrow ribbon of intense orange; for *White-wing*, a round flower with overlapping white segments, and shapely yellow crown. Mr. Engleheart showed many noteworthy seedlings, including several of his new strain of *N. poeticus*.

Messrs. Veitch obtained an Award of Merit for *Ivanhoe*, a quite small, neat flower of the *Nelsoni* class with bright-red cup.

Mr. R. Backhouse, Sutton Court, Hereford, brought some seedlings of promise, mostly as single flowers, more of which should be seen for a fair judgment.

Orchid Committee.

Present: W. Thompson, Esq., in the chair; and Messrs. Jas. O'Brien (Hon. Sec.), De B. Crawshaw, H. Ballantine, H. Little, A. H. Smee, F. J. Thorne, H. J. Chapman, W. H. White, W. H. Young, E. Ashworth, T. W. Bond, W. Cobb, H. Williams, G. Douglas, H. M. Pollett, E. Hill, S. Courtauld, and T. B. Haywood.

There was a grand display of Orchids, in which the *Odontoglossums* and hybrid Orchids predominated.

Messrs. Jas. Veitch & Sons, Royal Exotic Nursery, King's Road, Chelsea, staged a very effective group, for which they were awarded a Silver Flora Medal, in which the leading novelty was *Laelio-Cattleya* × *Thorntoni* (C. Gaskelliana ♀, L. Digbyana ♂), the third cross they have effected with varieties of *C. labiata* and L. Digbyana. In general appearance it resembled L. C. × *Digbyana-Trianae*, illustrated in the *Gardeners' Chronicle*, Jan. 1, this year. The sepals and petals were of a pale lilac, the lip creamy-white, with yellow markings on the centre, and pale rose flush towards the enlarged and fringed front lobe (First-class Certificate).

Another fine hybrid, for which also a First-class Certificate was awarded, was *Laelio-Cattleya* × *Welliana* var. *Langleyensis* (C. Trianae ♀, L. purpurata ♂), a handsome flower, with sepals and petals white, tinged with lilac. The showy lip had a yellow tinge in the tube, the front lobe being rich violet-crimson. The third fine exhibit, selected for an Award of Merit, was *Cattleya Schroderae amabilis*, a grand variety of the typical peach-blossom colour, with orange throat; and *Laelio-Cattleya* × *Aescania superba*, and L. C. × *Philo* showed these two pretty hybrids in their best form. A blaze of rich orange and red colour was given to the group by the many fine plants of the original and best form of *Laelia* × *Latona*, and striking features were good varieties of *Cattleya Mendeli*, *Masdevallia Veitchii*, with twenty flowers, the handsome *Brassia brachiata*, and *Epidendrum Wallisii* with three heads of bloom.

Messrs. Linden, l'Horticulture Internationale, Parc Leopold, Brussels, were awarded a Silver-gilt Flora Medal for one of the finest and most interesting groups of Orchids ever exhibited. In the group were bewildering series of varieties of *Odontoglossum Wilckeanum*, of which O. W. Linden was the finest and most richly coloured, though O. W. Schusterianum, O. W. Thompsoni, O. W. Ballantini, and O. W. Stevensii, were all fine, and totally dissimilar from each other. Other fine-spotted *Odontoglossums*, to which it was difficult to assign a pedigree, were O. × *Queen* of the Belgians, a cream-white, spotted hybrid of O. Hunne-wellianum, which was also represented in variety; O. × *Princesse des Canaries*, a bright yellow flower, with fringed white lip, with some of the features of an O. luteo-purpureum, but with the thin texture and angular outline of *Miltonia virginialis*; O. × *Royal Tiger*, a very strange

flower; and among forms of recognised species and varieties, O. Pescatorei Roi Leopold, a fine white, with a profusion of violet spots; O. crispum Comte de Flandres, with one large blotch on each sepal; O. Ruckerianum deliciosum, O. triumphans aureolum, *Miltonia vexillaria*, *Memoria Lindeni*, a grand flower of a rich rose colour; *Cypripedium* × *Leban-dyanum superbum*, a charming hybrid; C. Rothschildianum platyanum, C. Argus Lindeni, *Cattleya Mendeli* "The Pearl," a lovely blush-white, *Miltonia vexillaria candidula*, &c.

Sir Trevor Lawrence, Bart., Burford, Dorset (gr., Mr. W. H. White), showed *Merodes ananthurum*, a fine variety of the M. Bucinator form, but with flowers wholly of rich claret-purple. The specimen bore four strong spikes of many flowers (Botanical Certificate).

The Rt. Hon. Joseph Chamberlain, Highbury, Moor Green, Birmingham (gr., Mr. Smith), sent a pretty group, in which the principal feature consisted of several plants of the pretty *Laelio-Cattleya* × *Highburyensis* (C. Lawrenceana × L. cinnabarina), of a decidedly novel hue, the sepals were of a salmon colour slightly tinged with rose, the petals veined and tinged with rose-purple, and the lip of a rich claret-crimson. Another of the Highbury hybrids shown in fine condition was *Masdevallia* × *Chamberlaini* (Harryana × *huttleworthii*), with handsome flowers of a light purple colour, bearing red lines in the centre, and reddish-yellow tails.

ELIJAH ASHWORTH, Esq., Harefield Hall, Wilmslow, Cheshire (gr., Mr. Holbrook), showed *Cattleya Mendeli* Beatrice Ashworth, a charming nearly white form, with a delicate blush hue on the petals (Award of Merit); and *Cattleya Schroderae*, Harefield Hall var., a singular departure from the usual form of the species, the labellum being richly coloured with ruby-crimson, as in some forms of C. Mossiae (Award of Merit).

Baron Sir H. Schroder, The Dell, Eaglefield Green (gr., Mr. Ballantine), showed *Odontoglossum triumphans superbum*, a very large and richly-coloured form.

His Grace the Duke of Westminster, Eaton Hall, Chester (gr., Mr. Barnes), showed *Odontoglossum Pescatorei* Duchess of Westminster, a fine flower of perfect form, clear white, profusely blotched with purple (Award of Merit).

Messrs. Hugh Low & Co., Clapton, staged an effective group, in which were several very fine *Cattleya Mendeli*, the best being C. M. Mrs. John Bradshaw, a fine bold flower, with crimson front to the lip, contrasting finely with the white and chrome-yellow of the side lobes. Among their *Odontoglossums* were O. Pescatorei Enfieldense, a well-formed flower, with small purple spots on the petals; some fine O. crispum, and O. Andersonianum, one plant of the latter bearing three large branched spikes; O. Edwardi, O. cirrhosum, several pretty forms of *Oncidium*, *Spilopterum*, &c. (Silver Banksian Medal).

Messrs. R. S. Williams & Son, Upper Holloway, were awarded a Silver Banksian Medal for a pretty group, in which were good forms of *Cattleya Mendeli*, one of them being the light coloured C. M. Morganiae, the pretty little *Trichocentrum tigrinum*, *Trichopilia crispata*, and T. lepidia, *Vanda suavis*, and excellent forms of *Odontoglossum crispum*, O. Andersonianum, and others.

J. BRADSHAW, Esq., The Grange, Southgate (gr., Mr. Whiffen), showed a group composed of fine varieties of *Odontoglossum crispum*, among which was a pretty spotted form of the O. c. Horumani class, a finely-coloured *Cattleya Lawrenceana*, C. intermedia alba, *Brassia brachiata*, *Dendrobium Jamesianum*, &c.

H. GREENWOOD, Esq., Highfield, Haslingdon, showed *Odontoglossum Humeannum*, Greenwood's variety, with cream-coloured lip, yellow sepals and petals marked with red-brown, and purple column; *Odontoglossum Hume-wellianum maximum*, a very beautiful variety (Award of Merit), and a purple-tinted form of O. asperum.

J. COLMAN, Esq., Oatton Park (gr., Mr. King), showed a grand plant of *Cattleya Lawrenceana*, furnished with about twenty flowers (Cultural Commendation).

WALTER COBB, Esq., Dulcote, Tunbridge Wells (gr., Mr. Howes), showed a fine plant of *Cypripedium* × *Gertrude Hollington* (Cultural Commendation), *Odontoglossum polyanthum*, Dulcote variety, and a fine specimen of *Dendrobium albo-sanguineum*.

DE B. CRAWSHAW, Esq., Rosefield, Sevenoaks (gr., Mr. S. Cooke), again showed the noble *Odontoglossum triumphans* var. *Lionel Crawshaw*, illustrated in the *Gardeners' Chronicle*, April 20, 1895, p. 489. Fine as it then was, it has much improved, the segments being broader, and the whole flower rounder and larger. The characteristic yellow margin and other fine features are still the same (Cultural Commendation).

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Aldons), also showed a fine O. triumphans.

C. L. N. INGRAM, Esq., Elstead House, Godalming (gr., Mr. T. W. Bond), sent *Cattleya Sedeni* (Lawrenceana × *Percivalianum*), like a large red bright C. Lawrenceana, but with more ample labellum (Award of Merit).

J. SPARKS, Esq., Heathside, Ewhurst, sent *Cymbidium canaliculatum*, received from Queensland, and bearing a dense spike of small dark purple flowers (Award of Merit).

F. W. MOORE, Esq., Royal Botanic Gardens, Glasnevin, Dublin, sent *Neobenthamia gracilis*, with a pretty head of white flowers.

Fruit Committee.

Present: Philip Crowley, Esq., chairman; and Messrs. Geo. Bunyard, P. C. M. Veitch, Jos. Cheal, G. W. Cummins, A. F. Barron, A. H. Pearson, J. Wright, Alex. Dean, W. Pope, Geo. Wythes, J. Smith, W. J. Empson, J. Willard, Geo. Norman, and H. Divers.

The best Apple in the competitive class for flavour was Allen's Everlasting, shown by Colonel BRYMER, Ilington House, Dorchester. The fruits were obtained from a hush-tree on the Paradise stock, and were excellent for this part of the season. The 2nd prize was awarded to Herefordshire Pearmain, shown by C. P. SARCOLOD, Esq., Taplow Hill, Maidenhead.

An Award of Merit was unanimously recommended to Melon Lord E. Cavendish, a fine fruit, with greenish white flesh very fine in flavour, especially for April, shown by Mr. O. THOMAS, Royal Gardens, Windsor.

A magnificent collection of fruit and vegetables was shown by Mrs. WINGFIELD, Amptill House, Amptill (gr., Mr. W. J. Empson). Of fruit we remarked a bunch of Bananas, about a dozen well-fruited plants of Royal Sovereign Strawberry, and a dish of same, and of the variety Sir Joseph Paxton, several sorts of Apples, including a seedling from Beauty of Kent, ripe Tomatoes, also Rhubarb, Cucumbers, and various vegetables, of which the most noticeable were the uncommonly fine Leeka of the varieties Lyon and Holborn Model (Silver-gilt Banksian Medal).

A no less remarkable collection of vegetables was that from Lord PERCY, Syon House Gardens, Brentford (gr., Mr. Geo. Wythes). The group included about thirty-three dishes, and many of these were obtained by forcing. New Potatoes, Peas, Tomatoes, Cucumbers, Lettuces, French Beans, Asparagus, Carrots, Mushrooms, Seakale, very fine; Leeka, and a fine lot of green vegetables were all excellent (Silver-gilt Banksian Medal).

An Award of Merit was recommended to a first-class strain of Sprouting Kale shown by Mr. J. REAN, gr., Bretby Park, Burton-on-Trent.

Messrs. Jas. Veitch & Sons showed Market Favourite Broccoli, a variety with moderate-sized, compact, white heads of very good appearance.

A Cultural Commendation was deservedly awarded to Mr. H. T. Martin, gr. to Lord LEIGH, Stoneleigh Abbey, Kenilworth, for very finely grown Seakale, some of the heads being nearly 1 lb. in weight.

Lecture.

In the afternoon a lecture was delivered by Mr. F. W. RUBINER, M.A., Curator of the Botanical Gardens at Trinity College, Dublin, upon "Sweet-scented leaves versus Fragrant Flowers." Collections of sweet-scented plants were kindly lent by the Director of the Royal Gardens, Kew, Messrs. Jas. Veitch & Sons, and Mr. Jas. Hudson, and these served to illustrate the discourse. The hall was greatly thronged at the time Mr. Burbridge was speaking, and the consequent noise prevented his audience hearing the lecture with any degree of comfort.

NATIONAL AURICULA AND PRIMULA.
Southern Section.

APRIL 16.—The annual exhibition of this Society was held on Tuesday last at the Drill Hall, James Street, Westminster, in conjunction with the meeting of the Royal Horticultural Society.

That the Auriculas generally were rough, and the show varieties especially so, was readily acknowledged. There was no lack of vigour in growth, but the cold easterly winds, and especially the low temperature at nights, caused the pips to expand in a halting way; extremes of temperature always produce roughness, hence there was a great lack of finish. That there is no falling off of interest in the cultivation of what has been described as a "lovely and fascinating flower" was seen in the number of entries; there were eight entries in the class for twelve show Auriculas, but four only found themselves able to compete. Flowers that it was hoped would have been in bloom failed to be sufficiently advanced, and it was the same in the class for six varieties. The 1st prize collection of twelve came from Mr. J. DOUGLAS, Great Bookham, but the award occasioned some surprise, as it was thought by certain experts that the balance of quality lay with Mr. C. PHILLIPS' collection, which was placed 2nd. Mr. DOUGLAS had of green edges, Mrs. Henwood, a neat variety, but somewhat coarse as shown; Dr. Hardy, raised by Mr. B. SIMONITE, a much more refined variety than the preceding, and Greenfinch. Grey edges: Olympia, a large and showy variety, but as shown, certainly lacking refinement; George Lightbody, and Marmion. White edges: Mrs. Dodwell and Aene; and self: Negro, Mrs. Potts, and Black Bess, these were the leading varieties.

Mr. C. PHILLIPS, Bracknell, had of green edge, Mrs. Henwood; grey edges: George Rudd, Marmion, and Dr. Kidd; white edges: Rachel, John Simonite, Mrs. Dodwell, and Miss Woodhead; self: Mrs. Barnett and Mrs. Phillips, two fine varieties raised by the exhibitor, and certain to come to the fore for their superb quality.

Mr. SMITH had green edge James Hannaford, in good character; it is comparatively new, and this was the only example of it which came under notice. He also had grey edge Dinham, one of the late Mr. R. K. Penson's raising, the pip large, with a reddish body colour.

Mr. PHILLIPS, who has gained a position as a most successful grower for exhibition, was an easy 1st with six varieties; he had Mrs. Henwood, green edge; Richard Headly and George Rudd, grey edges; John Simonite, white edge; and Miss Barnett, self. Mr. W. SMITH was 2nd, his green edge Tha Rev. F. D. Horner; and his self, Mrs. Potts and Black Bess, with three others. Mr. BENNETT-POE was 3rd, showing Buttercup, a bright yellow self, a type that does not appear to be highly valued by some experts, perhaps because the contrasts are not sharp enough.

The class for four show varieties brought ten entries, and here again it was considered by some that the judgment was at fault. Mr. J. SAROENT, Cobham, was placed 1st, with Abbé Liszt, green edge, with sixteen expanded pips, a strong plant certainly, as it was selected as the premier Show Auricula in the whole exhibition; Lancashire Hero, grey edge, Mrs. Odwell, white edge, and Mrs. Potts, self, but the latter so large, rough, and out of condition, that it was scarcely recognisable. The 2nd prize went to Mr. A. S. HAMPTON, of Reading, a young grower who is likely to make his mark as a cultivator. He had a well-balanced quartette, consisting of the Rev. F. D. Horner and Lancashire Hero, green edges; George Rudd, gray, with eight good pips, and Heroine, self. There were eleven entries of two varieties. Mr. P. HENNEL, Winchmore Hill, was placed 1st, with green edge the Rev. F. D. Horner, and white edge Acme, both very good; Mr. A. SAROENT came 2nd, with green edge Abbé Liszt, and white edge John Simonide.

In the classes for single specimens, there was, as usual, a goodly number of plants. Mr. C. PHILLIPS had the best green edge in Mrs. Henwood; Messrs. SAROENT and DOUGLAS following in order with the Rev. F. D. Horner. The best grey edge was Old Lancashire Hero, from Mr. J. SAROENT. This latter exhibitor led the way with white edge, having Heather Bell; Mr. J. Gilbert, gr. to the Rev. R. L. Flood, Merrow, was 2nd, with Acme. Of selfs there was a good representation. Mr. A. FISK, Broxbourne, was 1st, with Heroine; and Mr. W. SMITH 3rd, with the same.

There was, as usual, the collections of fifty Auriculas, which are retained to add to the area of the exhibition without much increase of interest. Mr. DOUGLAS was 1st, with a collection which included of green edges, Monarch, very rough; Dr. Hardy, and Abbé Liszt; grey edges, Dinham, Ajax, Old Ringleader, very good; Silvia, George Rudd, and R. Headly; white edges, Heather Bell, Venus, and Lady Randolph Churchill, both new varieties raised by Mr. Douglas; and of selfs, Ariel and Ruby, two red-margined varieties, a class which needs strengthening; Lord of Lorne, Black Bess, and Blackbird.

The Premier Show Auricula was Mr. SAROENT'S Abbé Liszt, with sixteen pips, showing a good deal of refinement.

The ALPINE VARIETIES, always so bright and showy, made a brave display, though there were tendencies to roughness in many of the flowers. Size appears to rule, and with increased size comes the tendency to coarseness. Here Mr. C. PHILLIPS, who is now one of the foremost raisers of new varieties, was 1st with twelve, his leading gold centres, Evelyn Phillips, Vandyke, Mrs. Martin Smith, and Mrs. Gorton; white centres: Lady C. Walsh, Edith Western, Perfection, and Sister Mary, all raised by the exhibitor. As the plants were large, and as alpine can on the exhibition-table carry all the trusses they can produce, they form striking masses of bloom. Why the show varieties should be restricted to one truss of bloom only, is probably in the interests of size and quality; Mr. J. DOUGLAS was 2nd, also with fine seedlings, many of his own raising. He had of gold centres—Firefly, very bright, and extra fine; Dean Hole, extra fine; Britannia, Orelia, very handsome; and Queen of the East; white centres: Toujours Gai and Mrs. H. Turner—altogether a very good selection.

With six varieties, Mr. J. W. EUSTON, gr. to Mrs. WHITBOURN, Great Gearies, Ilford, was 1st; he had some fine varieties, locally raised, of gold centres, these were—The Bride, bright orange-salmon, very fine, Schubert, Psyche, Urania, and Calypso; with white centre Tennyson. There were nine entries of four Alpines, Mr. J. W. EUSTON, again taking the 1st prize, having Hiawatha, a very fine variety.

The best specimen gold centre was Clara Phillips from Mr. C. PHILLIPS. Mr. PHILLIPS also had the best white centre in Perfection, a promising new variety.

The premier alpine auricula was Mrs. MARTIN SMITH, a bright and striking gold centred variety raised and exhibited by Mr. C. PHILLIPS.

Fancy Auriculas were also shown in twelve, nondescripts—that is sportive Auriculas of various characters which cannot be classed, and yellow selfs. They appear to attract but little attention. The GUILDFORD PLANT CO. was 1st.

Fancy Polyanthus were shown and effective, shown in collections of twelve, but there was coarseness observed among them. Mr. J. DOUGLAS was 1st.

PRIMULAS AND PRIMROSES

Mr. DOUGLAS was the only exhibitor of twelve pots of Single Primroses, but with one or two exceptions they were coarser than we have seen before.

Double Primroses were not good. Messrs. PAUL & SONS, Old Nurseries, Cheahunt, were 1st with six large pairs of ordinary varieties; and the GUILDFORD PLANT CO. 2nd. The latter had two of the finest varieties, the Crimson and Late Yellow.

Species of Primulas made an interesting display as they always do. Mr. J. DOUGLAS was the only exhibitor of a collection of twelve, staging P. Sieboldii verticillata, mollis, japonica, and a pale variety, intermedia rosea, decora, floribunda, pubescens, very fine, and a poor pink form also, with Forbesii. Mr. J. W. EUSTON had the best six, staging verticillata, obconica, Forbesii, floribunda, intermedia, and Auricula.

Mr. J. T. BENNETT-POE had the best basket of Primroses and Polyanthus, showing fine quality.

The best collection of species and varieties of Primula or Auricula in a box or basket came from the GUILDFORD PLANT CO., who had Fancy Auriculas arranged with tuft and dwarf carpet plants. Mr. PUNELL-PUNELL came 2nd with a few species, prominent being Sieboldii, and show and alpine Auriculas. Mr. J. DOUGLAS, who appeared to have the best representation, was 3rd.

SEEDLING AURICULAS.

No new show varieties were exhibited, but prizes and Certificates of Merit were awarded to the following new varieties:—Miranda, gold centre, black ground, shading to amber tinted with red, fine shape and substance—this came from Mr. C. PHILLIPS; also to Mrs. Barefoot, much in the way of the preceding, but having a denser ground-colour, also of fine quality, from Mr. J. BAREFOOT, Croydon. Certificates of Merit were also awarded to grey-edged Olympus (DOUGLAS), of large size, weak in the tube, good paste, and slight dark body colour, and correct edge; to Mrs. Dransfield (PHILLIPS), a violet self, fine pip, smooth good tube and paste; to Alpine Firefly (J. DOUGLAS), gold centre, maroon shaded with bright crimson, fine quality, and very striking; and to Hiawatha (J. DOUGLAS), gold centre, with a dark ground, shading to deep salmon, large and smooth.

Prizes were offered for show and alpine Auriculas by maiden growers, and an encouraging competition ensued.

CHESTERFIELD CHRYSANTHEMUM, SPRING SHOW.

APRIL 20.—The show of spring flowers in connection with the above Society was held in very favourable weather in the grounds of Wingerworth Hall, by kind permission of Col. ALLEN, and the numerous visitors much enjoyed not only the show, but also a ramble round the grounds and the kitchen gardens, which alone measure 5 acres in extent.

Although too early in the season for a vegetable garden to be very attractive, the sight of big batches of early Cabbage ready to cut, and numerous rows of early Peas, appeared to interest many of the visitors, while others were much pleased with the sight of a border of mixed Wallflowers 100 yards long and 3 feet wide. The amount of fruit blossom is promising a good crop, if late frosts keep off, while indoors Peaches, Grapes, and Pigs are carrying satisfactory crops of fruit; and a long span-roofed house full of flowering plants, such as Roses, Mignonette, Spiraea, Deutzia, &c., came in for a full share of admiration, and Mr. Burke deserves praise for the clean and neat aspect of the gardens. Returning so as to see some more of the 30 acres of pleasure-grounds, we noted some very fine trees and old shrubs, a Portugal Laurel which was 80 yards in circumference, a pair of fine Weeping Ash trees, a very large variegated Sycamore, and several fine old Yews.

The show itself was an improvement on previous years, and in the class for a group of plants including bulbs, Mr. Jenkinson, gr. to S. BRADITT, Esq., Stubbin Court, gained the Silver Medal, with well-bloomed plants of Azaleas and A. mollis, grand potfuls of Mignonette, Cinerarias, &c. Mr. Austin, gr. to L. BRITT, Esq., Berry Hill, Chesterfield, gained a Bronze Medal for 2nd prize.

For a well set-up collection of hardy flowers, the Silver Medal went to Mr. Bloxham, gr. to R. F. MILLS, Esq., Tipton Grove; while Mr. Nelson, gr. to A. BARNES, Esq., Ashgate Lodge, showed finely twelve bunches of flowers, above or greenhouse. Mr. JENKINSON showed Dendrobium Wardianum in excellent condition as a specimen Orchid; while Mr. NELSON gained 1st for three Orchids. The last-named also gained premier position for Mignonette, Deutzias, Lily of the Valley, Tulips, Azalea indica, A. mollis, Cinerarias, and specimen Palm; while Mr. BLOXHAM put up twenty-four varieties of Narcissus blooms in fine condition, clean, and of good size. Mr. NELSON also staged in this class, and was awarded 2nd prize.

For six Ferns, Mr. H. Wood, gr. to A. T. BARNES, Esq., Chesterfield, was the only exhibitor, and he also showed Richardias in good condition.

Mr. NELSON put up a pretty group of flowering plants, not for competition, in which several of M. Crozy's Cannas were conspicuous, as well as three specimens of the old Spiraea runcus very well bloomed; and Mr. VICKERS, market grower of Wingerworth, showed a group of plants as grown or sale.

The amateurs who distinguished themselves on this occasion in the class for a group of plants arranged for effect were Mr. S. MAY, 1st, Mr. BURA following closely, but was lacking in colour—all creditable groups to be put up in mid-April.

If the Gardeners' Orphan Fund does not benefit by this latest attempt, it will not be the fault of the gardeners in the Chesterfield district, as they have proved themselves willing once more to make a show without any prospect of prize-money, and are deserving of encouragement in the object they have in view, viz., to promote amongst the toiling masses, as well as those in more affluent circumstances, a love of plants and flowers.

DURHAM, NORTHUMBERLAND, AND NEWCASTLE BOTANICAL AND HORTICULTURAL.

APRIL 20, 21.—It was generally agreed that the show was the best that has been held under the auspices of the society for many years. The display in all sections was beautiful but unequal, and the stands were so arranged that the visitor, on entering, saw a lovely vista of bloom in which a multitude of colours was charmingly mingled. The Hyacinths, on the left, were arrayed in long rows of magnificent spikes; the table decorations were in the centre; and there were Tulips, Auriculas, Daffodils, Cinerarias, and many more plants on the right. Near the entrance there was a margin of superb Azaleas,

fairly smothered in red and white blossoms; skirting the interior on either side were miscellaneous decorative exhibits; and in front of the stage were the "groups" of plants, fringed by a collection of Deutzias, covered with snow-white blossoms.

The competition in many classes was very close. The judges in the competitions were Mr. JAMES DOUGLAS, of Bookham, Surrey; and Mr. CHAR. PAUL, Old Trafford Gardens, Manchester.

The class for a group of miscellaneous plants, arranged to produce artistic effect, was well competed for by five exhibitors, and the arrangement in the best of these was very satisfactory. The 1st prize was taken by Mr. Geo. McDougal, gr. to Mr. W. PEASE, Arcot Hall, Dudley, Northumberland; 2nd, Mr. J. McIntyre, gr. to Mrs. G. PEASE, Woodside, Darlington.

Mr. J. MCINTYRE had the best group of three plants in bloom, and also the best three Azaleas; but was beaten by Mr. T. Wheeler, gr. to Mr. C. W. MITCHELL, Jesmond Towers, for three Orchids, and for three Hippeastrums.

The best groups of Cinerarias and Deutzias were from Mr. W. Pitt, gr. to C. L. BELL, Esq., Wolsington Hall.

A group of six plants of Primula sinensis, from Mr. Geo. McDougal, gr. to Mr. W. PEASE, Arcot Hall, was very commendable.

The best Cyclamens were from Mr. T. WHEELER. Auriculas and Polyanthus were exhibited in most of the classes for these plants, but they were not so good in quality as in many previous years.

The show of bulbous plants in flower was an average one. The best collection of twenty-four Hyacinths, in not fewer than twelve varieties, was shown by Mr. GEO. McDougal; and Mr. D. WYLLAM, Shankhouse, had the best group of twelve plants in nine varieties.

Cut flowers were few, but the table-decorations were good, and considerable interest was shown in them.

Among the winners of 1st prizes in this section were Mr. F. EDMONDSON, Newcastle; Messrs. PEAKINS & SONS, Coventry; and Mrs. B. FENNINO, Newcastle.

There were also fifteen additional classes for plants in bloom, from which nurserymen were excluded.

THE PEOPLE'S PALACE HORTICULTURAL.

APRIL 23.—The usual monthly lecture was delivered on above date by Mr. ROBERT FIFE, Orpington, Kent, who took for his subject "Plant-culture," not dealing so much with cultural details as with the central or cardinal points of culture—some of the simple scientific facts lying at the basis of the process. In the course of his address, Mr. Fife gave an interesting account of some experiments he had been, and was still carrying out, at Orpington, by way of reaching conclusions as to the best soils and constituents of manures adapted to certain plants. The details of experiments with vegetables much interested the auditory. The next lecture will be given by Mr. George Gordon, V.M.H.; subject—"The Wonders of the Fern World," illustrated by limelight views.

The annual report of this Society for 1897 has just been issued, and it shows that there has been a substantial increase in the number of members, that four successful flower-shows were held in the year, and that they were largely attended. The entries for the four shows were 1085, representing 212 classes, and cash-prizes were awarded to the amount of £75 16s. 3d., exclusive of medals, and twice a year there is an inspection of flower gardens, greenhouses, and window-boxes. Several prizes are awarded. The educational work of the Society is furthered by means of monthly lectures, and on these occasions members are invited to bring plants and flowers, to which marks are awarded, the marks carrying corresponding prizes at the end of the year. An excursion to some place of horticultural interest takes place every year. The accounts show an income of £154 18s. 7d., and there is a small balance in hand at the bank. The report expresses a desire to see a large increase in the membership.

SOCIETY OF ARTS.

SOURCES OF COMMERCIAL RUBBER.

SUMMARY of the Lecture delivered April 25, 1898, by Dr. D. MORRIS, C.M.G.—"There is a consensus of opinion that in nearly all localities in Central America the trees of Castilleja elastica are being gradually exterminated. Hence, the supply of rubber from Mexico, Guatemala, Nicaragua, and the United States of Colombia is steadily diminishing. The interesting tree yielding Ceara-rubber (Manihot Glaziovii) readily propagates itself, and its area has not apparently sensibly diminished of late years. The people are, however, being more and more attracted into the rubber districts of the Amazon valley, and the amount of Ceara-rubber exported is comparatively small.

Mangabeira-rubber, on the other hand, seems to be increasing. The tree (Hancornia speciosa) is found in the States of Pernambuco, Bahia, Rio de Janeiro, and extends westward to Matto-Grosso. The rubber is cured by means of alum, it is of a pinkish colour, and the price is generally only one half of that of fine Para. Passing on to the rubber-producing areas of the Old World, it was stated that the rapid development of African rubber was one of the most remarkable

incidents of recent years. As regards the world's commerce, Africa now occupied an important place as a source of India-rubber. The value of the imports of African rubber into the United Kingdom during 1896 amounted to over one million sterling. Of this, foreign possessions supplied rubber to the value of £206,972, and British possessions £844,840. Up to within a recent period, all the rubber produced in Africa was obtained from climbing plants belonging to the genus *Landolphia*, with sweet-scented flowers, and edible pulpy fruits. In 1894, a new rubber-tree (*Kickxia*) was found at Lagos, from which, in 1895, rubber to the value of nearly £300,000 was exported.

More recently still, another new rubber-plant (*Carpodinus*), has been discovered in Africa. This is of a semi-herbaceous character, with underground stems, which are rasped in water, and yield rubber of excellent quality.

The rubbers of Assam, Burma, Penang, and Singapore were then dealt with. Borneo rubber, although known since 1798, has only come into commerce within the last fifty years. It is yielded by climbing plants, closely related to the *Landolphas* of tropical Africa, and is generally of excellent quality.

New Guinea rubber is in part yielded by a species of *Ficus*. The natives are said to allow the sap to run over their arms and body, and when hardened they remove it and roll it up into balls the size of cricket-balls. The prospects of obtaining some of the future supplies of rubber from cultivated trees were favourable regarded. In selecting sites for plantations, preference should be given to localities in which the trees were already found. Para rubber-trees, introduced to the East at the expense of the Government of India, had done remarkably well in Ceylon, Tenasserim, and the Straits Settlements. In Ceylon, such trees were estimated to yield 120 lb. of rubber per acre after the tenth year. This would give a probable return of 20 per cent. on the capital invested.

In the Straits Settlements the trees were found to yield at an earlier age, and the estimated returns per acre were placed as high as 30 per cent. It was stated that where rubber-trees were cultivated under suitable conditions they would probably yield a larger quantity of milk than wild trees; also that the rubber, from the greater care and attention it would receive, would be more uniform in quality, and therefore obtain a higher price.

THE MARKET GARDENERS, NURSERYMEN, AND FARMERS' ASSOCIATION.

This Association, of which HERBERT B. BELL, Esq., is the Secretary, and whose offices are at 82, King Street, Covent Garden, London, W.C., request us to publish the following communication, which is signed by Mr. WILLIAM POUPART, President of the Market Gardeners', Nurserymen's and Farmers' Association.

"AGRICULTURAL RATES ACT.

SMITH AND OTHERS v. RICHMOND.

The Court of Appeal, reversing the judgments of the Courts below, has held that "Glass Houses" are not to have the benefit of the relief given by the Agricultural Rates Act, 1896, to "Market Gardens and Nursery Grounds."

Having regard to the importance of the question to Growers, my Association has determined to carry it to the House of Lords if we can secure the support of the Trade generally.

We have many calls on our funds, and it is felt that the serious expense involved in proceedings of such widespread interest should not be wholly thrown on the subscriptions of our Members.

Growers throughout the country are invited to inform our Treasurer, Mr. GEORGE MONRO, by letter, addressed on or before the 30th inst., to the Offices of the Association, as above, what financial support they are under the circumstances prepared to afford the Association."

Mr. HOLLS, of Worthing, contributes £27, and it is to be hoped that many will follow his example.

BRITISH ORCHIDS.—Mr. A. D. WEBSTER, of Greenwich Park, announces for immediate publication, by J. S. VIRTUE & Co. LTD., a work on "British Orchids." The book will contain an exhaustive description of each species of our native Orchids, and will be fully illustrated.

A FOREST SCHOOL FOR THE U.S.A.—The first school of forestry in the United States has been established by New York State, the legislature of that State having given the sum of 10,000 dollars for the expenses of the first year, and authorised the purchase of some 30,000 acres of forest land for the purpose of study.

NOTICES TO CORRESPONDENTS.

ADDRESS: C. H., writing from Bath, is requested to establish his *bona fides* by kindly furnishing his full name and address—not necessarily for publication.

ANDROMEDA: *Enquirer*. The genus is more or less narcotic, and *A. polifolia* is an acrid narcotic fatal to sheep; and *A. ovalifolia*, a Nepalese species, is poisonous to goats.

ARALIA VEITCHII: M. R. M. Generally grafted on *A. Guilfoylei*.

BOOKS: *E. Challoner*. A large amount of information of the kind required is obtainable from a manual entitled *Bulbs and Bulb Culture*, illustrated, by Mr. D. T. Fish, and published about 1877 by Mr. Upcott Gill, at the office of the *Bazaar*, 170, Strand, W.C. This manual appeared in several parts. *The Propagation and Improvement of Cultivated Plants*, by F. W. Burbidge, contains much original matter on bulbs. It may be met with at the second-hand shops.

BULBS: L. B. We regret that the *Narcissi* arrived in such a condition as to be unrecognisable. The Tulip is a form of *T. Gesneriana*, but we cannot give the varietal name; send to some trade grower.

CURRENT-BUD MITE: G. J. and W. L. It is strange that growers do not seem to read about what concerns their business. This has been described and figured repeatedly in our columns. We fear there is nothing to be done but to cut off and burn all the affected shoots. It is a very serious matter for fruit-growers. See especially *Gardeners' Chronicle*, February 19, 1898, p. 119, col. ii.

CANNON HALL MUSCAT: D. N. M. In some varieties of Grapes the flowers possess stamens that incline outwards and downwards, so that the pollen-grains although not deficient in quantity, fail in numerous instances to get deposited on the stigma, hence partial or complete sterility. This may be averted by using its own or other Grape-pollen. We do not know if the flowers of this variety are so formed, but they may be. The treatment afforded is of the right kind, as is shown by the good crops of Grapes obtained from the other Vines in the house.

DISEASED PLANTS: M. R. M. The "mining" larva of a fly, *Phytophaga nigricornis*; burn the affected leaves.

INSECTS ON LAWN: E. T. Daddy Longlegs (*Crane-fly*) grubs. Stir the surface, and turn the ducks and chickens into the garden. The female of the Crane-fly lays her eggs in grass and rough herbage in the autumn, and it is at that season that the most effective measures can be taken. Penning sheep on the land prevents the deposition of eggs, and gets rid of the growth of grass; so does close-mowing, followed by bush-harrowing. Much dampness in the soil favours the increase of the caterpillars, whilst draining has the contrary effect.

LIFTING BULBS: W. S. The roots of *Narcissus*, *Hyacinths*, *Scillas*, *Chionodoxa*, *Crocus* may be dug up when the foliage is in process of dying down. Tulips should be removed from the soil when the flower-stalk can be twisted round the finger without breaking, and to leave them longer is to run the risk of a renewal of growth if the season be moist. The first, third, fourth and fifth need not be dug up unless the bulbs are in the way of summer flowers, or replanting is considered necessary.

LUPINUS POLYPHYLLUS: *Anxious One*. The time named on the packets is a suitable one, the resulting plants being small and compact by the end of the growing season, and well able to go through the winter safely. Seed sown now would not produce flowering plants this year, but they would be long and straggly, and liable to injury from rough winds, &c.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—G. D. L. 1, *Rhipsalis saglionis*.—G. H. S. 1, *Lonicera* sp.; 2, *Dorstenia contrajerva*; 3, not recognised; 4, *Myrica Gale*; 5, *Mercurialis perennis*.—W. C. F. 1, *Fritillaria Meleagris*, white variety.—E. E. 1, *Amelanchier vulgaris*.—E. S. R. 1, *Cochlearia officinalis*; 2, *Cotyledon Umbilicus*; 3, *Sedum sexangulare*; 4, *Pinus excelsa*; 5, *Asplenium Trichomanes*; 6, *Polystichum angulare viviparum*.—Mrs. H. Azara dentata.—J. Pentland. 1, *Omphalodes verna*; 2, *Orobanchis cyanus*; 3, *Saxifraga crassifolia*.—G. C. 1, *Amelanchier vulgaris*, snowy *Mespilus*; 2, *Anthericum lineare variegata*; 3, *Forsythia viridisima*; 4, *Kerria japonica*.—C. A. B. 1, *Iibiscus Cooperi*; 2, *Selaginella stolonifera*; 3, *Asplenium viviparum*; 4, *Gazania splendens*; 5, *Lantana*, one of the garden forms; 6, *Clivia* (*Lianophyllum*) *miniata*.

—E. H. Sheffield. 1, seems to be a yellow-tinted form of *Dendrobium Ainsworthii*. It may not prove constant; 2, 3, 4, 5, and 7, varieties of *D. nobile*; 6, a sparsely-spotted variety of *Odontoglossum Andersonianum*.—E. H. 1, *Doronicum plantaginum*; 2, *Saxifraga crassifolia*; 3, *Acalypha marginata*.—L. P., Devon. 1, *Dendrobium primulinum*; 2, *Dendrobium cucullatum* of gardens; 3, *Lycaste* (*Bifenaria Harrisoniae*).—G. A. J. *Tulipa sylvestris*.

PEACH FOLIAGE: *Gardener*. The leaves sent are affected by mildew, and you would do wisely to cut off and burn the worst affected of them, afterwards syringing with some of the remedies against mildew sold by florists, or sulphide potassium at the rate of half an ounce to one gallon of water, doing this forthwith, or the mildew will extend to the fruits.

PEACH-BLOSSOMS NOT SETTING: E. P. Unless we could see the trees and knew the kind of culture adopted, we could not give a definite answer. We should imagine from the shoot sent that the very immature state of the wood is the cause of the flowers dropping without setting. The flowers that form at the green ends of ordinarily-ripened shoots drop off from the same cause.

PEACHES: B. W. The silver-leaf disease, the cause of which is not known. Cut off all the affected shoots and burn them, watering at the roots with weak solution of sulphate of iron—half an ounce to a gallon may be tried.

STRAWBERRY: T. S. We suspect your fruits are a variation from Noble; but it is impossible to tell from the fruits sent.

THIPS ON PEAS: *Peas*. You might protect the Peas by syringing the haulm with petroleum emulsion, that is by making a strong soap ley with soft-soap 4 oz. and a wineglassful of petroleum to 1 gallon of water. Several applications may be needed. Quassia-water might also be tried, or even frequent applications of clean water or soapy water by means of the garden-engine would have a deterrent effect. If the land is light, mulch it on both sides of the rows; or if you grow Peas in a quarter by themselves, mulch the land all over.

TUBEROSE: M. R. M. Probably the flower-spikes started too rapidly for the root to support them to maturity. You omitted also to remove the offshoots, and for some reason they have become affected by "rust."

TULIP WITH A TWO-FLOWERED STALK: G. B. This is a case in which two flower-stalks have, from some unknown cause, grown together from the first, dividing, however, an inch below the flower, each branch bearing one flower. Fasciation in the stems and stalks of bulbs is not rare, but two-flowered Tulips are very uncommon, either on one or separated stalks.

VINES NOT SETTING: T. Jenkinson. Unless we knew more about your mode of treatment we cannot advise you.

COMMUNICATIONS RECEIVED.—A. K. B.—J. S.—L. L.—E. A.—E. M. H.—E. W. B.—W. B.—D. M.—C. W. D.—G. M.—W. P.—H. E.—A. K. P.—D. N.—C. W. D.—G. G.—T. Bate (next week)—W. K.—W. B. H.—H. R., Plymouth.—W. G. S., Leeds.—Merewether & Sons.—F. A. W.—H. T. M.—J. O'B.—W. J. B.—C. H.—H. R.—E. H. J.—Capt. Walter.—W. P.—W. A. C.—F. W. B.—H. E.

PHOTOGRAPHS, SPECIMENS, ETC., RECEIVED.—E. D. T.—F. S.—H. T. M. (many thanks; will be reproduced shortly).

CONTINUED LARGE INCREASE in the CIRCULATION of the "GARDENERS' CHRONICLE."

Important to Advertisers.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED,

and that it continues to increase weekly.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.

(For Markets and Weather, see p. xii.)



THE

Gardeners' Chronicle.

SATURDAY, MAY 7, 1898.

THE CHRONICLE OF A LITTLE CORNISH GARDEN.

(Continued from p. 197.)

APRIL 1.—Since I wrote my last notes, full of optimistic references to spring's arrival, I have received my rebuff. Nature, indignant at my presumption in attempting to forecast her intentions, has sent a couple of hurricanes across my garden. The result has, of course, been a check to the march of my spring flowers, and thus my garden does not appear so very much further advanced than it did a month ago. To some extent, the flowers most in evidence then—Anemones, Primroses and Daffodils—are the ones which are most prominent now. Still, others appear almost every day, and fresh shoots and leaves inform me that but a little patience is needed in order that my garden flora may present me with an entirely new picture. Compared with last year, my early Tulips have been a failure. Something has damaged a number of the bulbs, so that the leaves and flowers appear puny and worm-riddled. The late-flowering Tulips, however, seem to have escaped, and in a week or two I expect a brilliant show from them. I am especially looking forward to a mass of Tulipa Gesneriana, which I planted last autumn. My early Tulips I have carpeted, some with Rock-foils, others with Iceland Poppies, and yet others with Pinks. Thus the partial failure this year does not disfigure the border, as would be the case if the Tulips stood on the bare earth; and at the same time the formality of the dazzling flowers is considerably softened.

One of the finest and most interesting flowers of April is the "Crown Imperial, Emperor of Flowers," as Chapman called it. Gerard went so far as to give it the first place in his *Garden of Delight* "for its stately beautifulesse." Long before its flowers appear, its light green leaves materially help to decorate the early spring border, and to afford a background for the flowers of March. The clusters of curious red and yellow flowers at first look upwards, but as the flowers open they become pendent bells, and thus exclude flies, beetles, and such undesirable guests from the feast of honey secreted by the bases of the six perianth leaves. This feast is prepared for bees, and they alone are able to reach it.

The dwarf species of Fritillary are all interesting, and worth cultivating. They mostly produce graceful bells of the duldest colours, fantastically chequered. [Even the pure white form of *F. Meleagris* has a chequered pattern. Ed.] *F. aurea* was the first to flower with me, and is one of the handsomest, its golden flowers being beautifully marked with numerous black dots. *F. Meleagris* (the chequered guinea-hen flower), in all its shades of colour, is worth growing in every garden. At present I have only a few plants, but next autumn I shall get a quantity, and plant in various

selected spots. Another species, especially valuable, is *F. pallidiflora*, with beautifully marked large yellow flowers. This, however, is as yet too costly to purchase in quantity, as also is *F. recurva*, a large species with reddish-orange flowers, which is unfortunately scarcely hardy.

No garden is so badly situated but it may grow the Doronicums, and few spring flowers are more showy. Care must be taken, however, not to introduce them too freely among small subjects, as their vigorous roots soon take possession of the ground in all directions. The species I have are *D. austriacum* and *D. plantagineum excelsum*, which are, I believe, the best. The Doronicums succeed in the shade as well as in full sun.

This remark does not apply to some other plants now in flower which are frequently grown in the shade. I mean the perennial Alyssums and Candytufts, which only show their brilliant white and yellow masses to perfection in the full glare of the sun. On the other hand, the Hepaticas, of which I have splendid clumps in bloom of double and single, red and blue, thrive best in the partial shade of deciduous trees. The other important part of their culture is to leave them alone. The present month produces what is surely the bluest flower in the world, that of the vernal Gentian. I have a clump in full exposure to the sun, with buried stones about the roots to retain moisture, and throughout the day the brilliant blue five-cleft discs are dazzling in their beauty. The same situation, I find, suits *Gentiana acaulis*, whose erect blue bell-shaped flowers are more frequently to be seen than the dwarf *G. verna*.

A number of Scillas are now in bloom, and I notice that *S. campanulata*—of which I have some thousands of bulbs naturalised beneath deciduous trees—is beginning to show its light blue bells. This species cannot be compared with the earlier *S. bitolia* and *S. sibirica* for beauty, though it is almost handsome in its great vigour. Its varieties *alba* and *rosea*, are interesting and worth growing.

My Poet's Narcissi are just breaking into bloom, and fortunately they need no recommendation, being among the few flowers which everyone admires. I do not expect my double Narcissi to bloom this month, as I planted them late in December. They will be welcome in May for their scent after the infinitely more beautiful single flowers have passed away.

I cannot understand how the Snowflake, which is now flowering, can by anyone be spoken of in the same breath as the single-flowered Snowdrop. The whole idea and essential grace of the latter flower seem to be absent.

The Violets are, of course, blooming. I grow several kinds, but to me the most beautiful of all is the common single-white. The beautiful form of the flower is changed into a shapeless mass in the popular and generally admired double kinds. The violet hybrids, the tufted Pansies, are beginning to flower, but their time is not yet, and I pick off most of the blooms as they appear.

The Violet has always been an honoured flower, as indeed its unique scent entitles it to be. Shakespere makes numerous references to it, in almost every case specially indicating its perfume. To quote but two instances:—

"To gild refined gold, to paint the Lily,
To throw a perfume on the Violet,
Is wasteful and ridiculous excess."

"I think the king is but a man as I am;
The Violet smells to him as it doth to me."

Another sweet flower which has long received poetic homage is the Wallflower. Above a little stony bank, behind my Escholtzias, is a row of great bushes of these golden, "iron-brown" flowers. This colour and yellow seem to me to be the appropriate colours of Wallflowers; and I cannot imagine myself caring for a blue one. In the incessant search for novelty, florists are inclined to pay little regard to associations and traditions. A scentless Carnation or Rose, a blue Wallflower, autumn Violets, all seem to me to partake of the character of monstrosities and strangers. Christina Rossetti's sonnet has a wide range of application:—

"For Violets suit when home birds build and sing,
Not when the outbound bird a passage cleaves;
Not with dry stubble of mown harvest sheaves,
But when the green world buds to blossoming."

My north border is now bright with the flowers of several species of hardy Primula, in addition to the Primroses and Polyanthus which I have everywhere. Among the best now in bloom are the sweet-scented little white *P. nivalis*, the sturdy and very floriferous *P. rosea* with bunches of bright red flowers, *P. denticulata* with dense globes of bright lilac, and *P. scotica*, a species not often seen, but exquisitely beautiful with its tiny yellow-eyed deep purple flowers.

My little greenhouse is now sweetly scented by the flowers of the Auriculas. Of those now in bloom, Vulcan and Prince of Greens are most admired, but all are beautiful as pot plants. Auriculas are particularly suited for pot-culture, being naturally of slow growth, set shape, and formal habit; whilst to get the full beauty out of the show varieties, it is of course absolutely necessary to grow them under glass.

Arabis, Aubrietia, and Forget-me-not, all help to brighten the borders with patches of violet, white, and blue, whilst several clumps of Saxifrage afford masses of white bells. Nearly all the plants now in flower are dwarfish in character, though the Crown Imperials and Wallflower are exceptions.

I must not forget my fruit-trees, which are now a mass of blossom. I look forward to a fair harvest of fruit this autumn. Every day my bees are hard at work gathering honey and pollen, and at the same time fertilising my flowers, and thus assisting the fruit-crop. I started with one stock of bees in the autumn. I have just divided it, placing three frames including a queen cell into a new hive. I hope that this will prevent swarming, but I have had no previous experience.

The Thorns, Lilacs, Laburnums, and Deutzias, are all showing their flower-buds, and, when these have expanded and fallen, the summer will be here. What a steady tramp, tramp it is! Harry Roberts.

ORCHID NOTES AND GLEANINGS.

CLARE LAWN, EAST SHEEN.

THE collection of Sir Frederick Wigan, Bart., which is well grown by Mr. W. H. Young, offers a good example of Orchid culture, worthy of imitation. Among the fine and rare plants noticed on the occasion of a recent visit, were *Laelio Cattleya* × *Digbyano-Trianei*, a figure of which appeared in these pages, Jan. 1, this year; *Phalenopsis Schilleriana vestalis*, and many others. Each spring the display made with plants of *Coccyne Lowiana* is an extremely fine one, the strength and beauty of the plants increasing annually. They are treated "cool." Some large plants of *Cymbidium Lowianum* always occupy the highest points of the rockery, their graceful

foliage harmonising with the fronds and leaves of Ferns and other plants planted out around. At the present time they form a charming picture, with long pendent sprays of showy flowers. There are ten of these large plants which bear a total of 100 spikes, and 1625 flowers. The longest spike is 5 feet 6 inches in length, and bears thirty-six flowers. The largest plant has twenty-seven spikes. The plant nearest to the roof had its leaves frozen to the glass once, and it was not injured at all. A strong specimen of the greenish-yellow *C. T. concolor* bears two fine spikes.

The Phalenopside in a warm, moist house, were giving promise of flowering abundantly; and *P. grandiflora aurea* and a few others were in bloom. In this house the *Cypripediums* from the tropics succeed admirably, and some of them are planted in beds, and many were in flower. Fine varieties of *Miltonia Roezlii* and *M. R. alba* were remarked in the house; also a richly-coloured *Cypripedium Mastersianum*, besides *Saccolabium ampullaceum*. In the intermediate-houses we noticed in flower *Cattleya Mendeli*, *C. Mossiae*, *C. Schroderae*, *C. intermedia*, *Laelia Latona*, *Tricopilia suavis*, and *T. suavis alba* with eleven flowers; *Sobralia macrantha* and *S. Ruckeri*, *Thunia alba* in several pretty specimens, *Oncidium ampliatum majus*, *Cypripedium Godefroyae*, *C. concolor*, the last-named bearing three flowers on a spike. Among the *Dendrobies* in flower were some fine *D. Bensonae*, *D. thrysiflorum*, *D. veratrifolium*, &c. In one of the houses a grand example of *Coelogyne pandurata*, on a 5-foot raft, and having four leading growths, was observed; in another, the specimens of *Laelia purpurata* were seen to be profusely furnished with flower-sheaths; and on a shelf near the roof a number of large pans of the different species of *Plisone* were growing vigorously. In the cool-house range a good display was made with *Odontoglossum crispum*, *O. Ruckerianum*, and other species; a fine lot of *O. Rossii majus* is in bloom, some of the plants having as many as twenty-five flowers. plants of the small-flowered *Erstedii* were bearing from twenty to forty blooms each. Others in flower were *O. elegans* with two spikes, *O. polyanthum*, *Disa tripetaloides*, and *D. Kewensis*; *Masdevallia Hirsckiana*, *M. Benedicti*, *M. Chestertoni*, *M. Veitchii*, *M. ignea*, *M. ephippium*, *M. Lindeni*, and other *Masdevallias*; also *Odontoglossum citreolum*, *Cattleya citrina*, the singular *Epidendrum hastatum*, and *E. Endresio-Wallisii*.

DENDROCHILUM FILIFORMIS, LIPARIS LONGIPES, &c.

Doubtless, in many collections of Orchids, the well-known *Dendrochilum glumaceum* will be in flower, or may have been during the past few weeks. The gracefulness of this species is alone a recommendation, and to those who are pleased with others, beside the more showy, I would say grow this *Dendrochilum* for spring-flowering; and also *D. filiforme* for the summer. The latter is a much rarer species, and will perhaps be considered by some persons the more beautiful. Others of the same genus are also well worth cultivating, but at the present time they are seldom met with in collections. Similar, in many respects, to the above is *Liparis longipes*, a plant possessing longer pseudo-bulbs than *D. glumaceum*, surmounted with two or three leaves of a bright green tint, and about 1 foot in length. Commencing to push in April and May, growth continues till the month of August, when the flower-spikes develop, whilst the pseudo-bulbs are finally swelling. By October the flowers appear on spikes of about 15 inches in length, forming an interesting sight. The spikes are almost erect, densely covered with flowers of a pale yellow, in fact, resembling those of *D. glumaceum* in size and colour, and withal, fragrant. The spikes last a long time in good condition. One plant that I had last autumn remained in an apartment at Bystock for a fortnight without suffering in any way. This plant came to us in a bundle of imported plants from Burmah, along with *Dendrobium Dalhousieanum*, and others; and so well did it grow, that nine spikes appeared the first year that it flowered, and the second year there were eighteen, whilst last year—the

third time—thirty-five spikes made it a very attractive object. This plant has now passed into the hands of a skilful Orchid cultivator. I anticipate an even greater advance by next autumn. *W. Swan, late of Bystock, Ermouth.*

THE USE OF ARTIFICIAL MANURES.

IS IT A CONTRADICTION, OR WHAT?—In the *Journal of the Royal Horticultural Society*, vol. xxi., Part I., August, 1897, p. 37, in a paper on "Artificial Manures," by Mr. J. J. Willis, I find the following:—"How much more useful these manures (stable and farmyard manures) could be rendered by an admixture with suitable artificial fertilisers."

various forms of dung in the soil, and the loss was greatest when the largest quantity of dung was used."

And on p. 482: "It now becomes of interest to ascertain what becomes of the nitrogen that loses its nitric form in the presence of dung." . . . "In every case it has been found that the nitrogen has been liberated in the elementary form."

P. 484: "There is thus no escaping from the conclusion that nitrates, whether naturally present in manure, or the soil, or when added in so-called artificial manures, are rapidly destroyed by organisms (bacteria) which are very abundant in dung, and are also present, though to a much less extent in soil."

Further on p. 484: "It was found that the crop was least, and the loss of nitrogen greatest, in the mixture that contained most straw." In other words, if you use nitrates in "conjunction" with dung, you may as well save the money



FIG. 104.—ODONTOGLOSSUM WILCKEANUM, PITT'S VARIETY.

(Shown April 12, at the Royal Horticultural Society's Meeting. For further particulars, see Report in *Gardeners' Chronicle*, April 16, p. 235.)

And on p. 42: "Artificial manures, therefore, are not recommended to take the place of farmyard or stable manure, but to be used in conjunction with them."

On the other hand, in the *Journal of the Royal Agricultural Society of England*, third series, vol. viii., Part III., No. 31, Sept. 30, 1897, now before me, I find the following in a paper on "Recent Experiments on Denitrification." On p. 477: "Notwithstanding the high position that artificial manures now take in the estimation of farmers in all parts of the world, it cannot be said that they have done anything to displace the use of farmyard manure, which must still be regarded as our most general and important fertiliser. All the farmyard manure produced in this country is still applied to the land, and artificials find their legitimate place as sources of plant-food on areas that the available supply of home-made manure is insufficient to dress."

But observe what follows on p. 480: "By a series of experiments and calculations, Maercker showed that from 12 to 47 per cent. of the nitrogen in nitrate of soda was dissipated through contact with the

spent in artificial nitrates, and leave it in the saving's-bank, for, if all that has been written be true, you will obtain no advantage from the use of the additional artificial manure!

What is called "long manure," with plenty of straw in it, seems to be the most wasteful, for the additional straw is prolific in denitrifying bacteria, which dissipate the nitrogen in its elementary form, and so render the nitrate valueless.

However, on p. 485, this is stated: "Evidently, therefore, the denitrifying power of the dung is lost to a large extent by contact with the soil for two or three months."

"Wagner carried out a series of experiments, which also go to show that the denitrifying bacteria are much less energetic in old than in new dung."

In England it has been found that no appreciable increase of crop resulted when artificial manures, such as nitrates, were used with dung. And now German experiments appear to have solved this riddle. They seem to show that nitrogen is dissipated in its elementary form; that is, it is lost or wasted by contact with dung; and fresh dung, when

used in "conjunction" with nitrates, is far more wasteful than well-rotted dung, "for the reason that the denitrifying organisms so abundant in the dung instantly attack the nitrate of soda (or other nitrate, and also sulphate of ammonia, &c.), and dissipate the nitrogen in the elementary form."

I suppose we may infer that it would require the nodules of Leguminosæ to capture this elementary nitrogen again, and make it available for the growth of plants. The curious thing is, that purely phosphatic and potassic manures also fail to produce satisfactory results when used with dung; "but Wagner's experiments show that the negative results obtained, when mineral-manures are added to dung, are intimately associated with denitrification."

The conclusion to be drawn from all these experiments, if they are reliable, is first, that dung-heaps should be frequently turned, "so as to induce rapid

would be a hopeless attempt to try and persuade practical growers not to use them; the problem is, how and when to use them, when the soil needs some ingredients which these home-made manures do not contain.

This subject is so important, from not only an individual but also a national point of view, that the more it is ventilated, the more is the likelihood that we shall get at the bottom of the conditions needed for scientific agriculture and horticulture. *E. Bonavia, M.D.*

NARCISSUS LADY MARGARET BOSCAWEN.

THIS fine new Narcissus, which gained the award of a First-class Certificate R.H.S. on April 12 last, was raised by the Rev. G. H. Engleheart from N. Hore-

"LA MAISON RUSTIQUE."

(Continued from p. 229.)

THE next two chapters are devoted to the consideration of Beets, Blites, Orache and Spinsge. These include a large number of plants, but the names were at one time strictly confined to a lesser number. The first-named, "Bette and Jotte" was what we now designate "Beetroots," and comprised at the period under review the white-rooted, the black-rooted, and the red-rooted "Beetes," sometimes referred to the above, more often to *Chenopodium Bonus* *Henricus*, in earlier times called *Betin* or *Betyn*. In France one of its names was "epinard sauvage," or "Wildspinach." Blites (Blette) included *Chenopodium album* and *C. rubrum*, both of which were cultivated. Lightfoot in *Flora Scotica* mentions having seen them eaten in Islay when in company with Pennant he, in 1772, visited the Highlands of Scotland. Of "Orache" there were two kinds, white and red-leaved, and these are varieties of *Atriplex hortensis*. Of "Spinage," according to our author, two sorts were grown, and chiefly for use during Lent; of these the one was known as the male, the other the female, the latter so named because it bore no seeds. This curious belief that it was the male and not the female plant that produced seeds was held by everybody. One of the very commonest examples is furnished by Hemp, and it was not till Phillip Miller pointed out the mistake that it was recognised as one. The female Hemp was called "Fimble," and the male "Carle" (Worlidge calls it *Karle*), and the latter was carefully looked after for seeds; or as Tusser puts it, "The Fimble to spin and the Carle for seed."

Leeks were cultivated in much the same manner as now. Onions were an important crop. Two sorts, the red and the white, the latter the more appreciated, were grown. It was "the countryman's meat," and "he that eateth every day tender Onions with honie to his breakfast shall live the more healthful." Chibols and Chives are noted as good in salade; then a long chapter follows on "Garlicke," which is called the countryman's "treacle in the time of plague." Treacle here has the old meaning of a certain composition used in sickness, and has nothing in common with what we know as that delectable semi-fluid. It is, however, curious that the ancient belief in the efficacy of treacle has been transmitted through long centuries, and still rests upon the article which bears its name. In some parts of France, Garlic eaten with fresh butter on the 1st of May was considered a hopeful method of securing immunity from sickness for the succeeding twelve months.

Purceleime, Rouquette, and Targon (Tarragon) were all salad plants in request. "Tarragon," Surfleet informs us, "is made of linseed pricked in many places of the head of a red Onion, and put into well-mauured earth." Smallage and "Chervile" are treated together. The former is noted as being of value as "a physic herb." In due time it became Celery. "Coq" (Costmary) and "Sano Monde" (*Avens*) were both held in much esteem as aromatic herbs. It seems strange now that so common a wayside weed as the latter should have been cultivated in gardens. The French, however, as well as the English, held it in high esteem, and it was called *Benôte*, or the Blessed Herb, "Herb Bennet" being a corruption of the first name. From the roots smelling strongly of Cloves it was also designated the Clovewort, anciently *Caryophyllata*, and now the well-known *Geum urbanum*. Asparagus, called "a delicate fruit," is followed by a chapter on Cresses. In the French original three kinds of Cresses are described; in the English, too, garden Cresses and Water-cresses. The former is made to include the "Cresson d'Alenois" and "La Berle," which last is said to grow with the Cresson d'Eau (Water-cresses), and in old English, "Caryndills." The Berle mentioned here is *Veronica Beccabunga*, commonly known as "Brooklime," the "Blue Cresses" of the Etricks shepherds, "Bonnie Kilmeny." At one time this was eaten freely along with Cresses. Now, many consider it poisonous. Miller explains how this has come about, through the creeping Water-Parsnip—*Apium* (*Sium*) repens—having been gathered for the Water-cress, and eaten with bad effects. This plant in *La Nouvelle Maison Rustique* is called "Berle or Sium," and we still find "Berle" in French dictionaries translated "Sium or Water-Parsnip." It is a curious instance of misappropriation of name and characteristics. Navets, both white and yellow, were largely cultivated. Turnips were too coarse for high-class tables, but in some parts of France the inhabitants actually lived on them, and



FIG. 105.—NARCISSUS LADY MARGARET BOSCAWEN: SEGMENTS SNOW-WHITE; CUP ORANGE.

fermentation, oxidation, and a high temperature" before using them; and second, not to use dung in "conjunction" with artificial manures, and especially with nitrates.

There can be no doubt whatever that farmyard and stable manures are very valuable and important fertilisers. The whole agricultural history of man, all the world over, from the most primitive times, furnishes evidence of this. The safest plan would, however, seem to be to use home-made and well-rotted manures one year without artificial manures, and only artificial manures the next year.

Artificial manures are trumpeted everywhere as the saviours of agriculturists and horticulturists, and no doubt if the soil wants these ingredients, and if the crops to be grown require them, they must be of advantage; the question, however, remains as to how and when these artificial manures should be used.

Farm and stable manures have for ages given satisfactory results, under certain circumstances, that it

field by pollen of *N. poeticus ornatus* (fig. 105). The effect of such a cross is often, as in the flower here shown, the shortening and expanding of the crown of the Trumpet Daffodil without infusion of colour from the poeticus. The great accession of size and stature may be attributed to the employment, as is the raiser's custom, of differentiated parents, i.e., in the present case the pollen used was that of a flower not grown in his own garden or vicinity. In form and robust habit, Lady Margaret Boscawen may be described as of the Sir Watkin class, but its remarkably broad flat segments are of clear white. The great size of this flower, its vigour and freedom of bloom, and its length of stout stem, must render it a coveted Narcissus, not only for the amateur collection, but for market work. It is named after the wife of the Hon. John Boscawen, who is well known in connection with the advancement of horticulture in his county of Cornwall.

ate nothing else. It is noted that Mustard ought always to be eaten with Navets. Radishes follow, and were a favourite esculent. Sweet Radishes were produced when the seeds, before sowing, were steeped for a time in honied wine, and those sown in the usual way were rendered less bitter if occasionally watered with salted water. Sennie (Mustard, which includes Charlock), was an important crop, the seeds only having been used. Our author states, it "sprang very easily, inasmuch as it is hard to destroy it where it hath been once sown." Hence the name *Sen vie*, "always living."

A few other vegetables are noted, and a long list of physic herbs, many of which we reckon now as weeds. Among these, however, occurs a long dissertation on Tobacco, over the healing qualities of which the writer is quite enthusiastic. These we cannot transcribe. But the reader is assured, as a fact not to be disputed, that "the inhabitants of Florida feed themselves a certain space with the fumes of this herb, which they take at the mouth by the means of small horns." Further on he adds that "the fumes of this herbe maketh men somewhat drunke, and by that reason call it a kind of yellow Henbane." Sarsaparilla, under the name of Mecoachan, a kind of "Lizeron," is also praised very highly for its curative powers. *R. P. Brotherton.*

(To be continued.)

REMINISCENCES OF GHENT.

(Continued from p. 259.)

BRUGES.

M. Vincke-Dujardin's Nursery.—A visit to the great establishment at Scheepsdale, Bruges, revealed a nursery in good order, and of more than usual interest by reason of the splendid condition of the inmates of the dozen or more long ranges of Odontoglossum-houses. These plants have been in fine condition for some years, and they are not declining as some persons supposed they would do, the specimens of *Odontoglossum crispum* and other *Odontoglossums* in *M. Vincke-Dujardin's* houses are magnificent, affording another proof that Orchids need not degenerate if proper provision is made for their culture, and the plants are carefully tended.

The plan of the great blocks of houses running right and left of the central transept is of the best possible to secure good ventilation, without causing cold currents of air for the houses, although forming separate houses above, are open underneath the staging, and there are no dividing walls.

At the time of our visit the fine varieties of *Odontoglossum crispum*, *O. triumphans*, *O. luteo-purpureum* and other *Odontoglossums*, *Miltonia vexillaria*, *Cattleya Mendeli*, *C. Lawrenceana*, *C. Schroderae*, *Vanda tricolor* and other showy species, and some good *Cypripediums*, made a beautiful display. Among large batches of plants not in flower, yet remarkable for the high state of culture evidenced, were many varieties of *Laelia anceps*, *L. purpurata*, and *Cattleya labiata*.

Palms of species suitable for decoration, and especially *Kentias*, which were observed from the tiny seedling up to the giant specimen abound, and all were in fine condition, clean, and well-grown; as were *Bromeliads*, likewise *Anthuriums*.

In the open ground, and planted in tubs, a very large number of sweet Bays, chiefly standards, in all stages of growth were remarked; some of the larger specimens being of great age, a few having been in the possession of the family for upwards of 130 years, tended and venerated as household treasures. With regard to these useful decorative trees, it is a mistake to suppose that their cultivation entails but little trouble. On the contrary, they require much care in storing them away in shelters in the autumn before frost injures them, to see that they are not placed outside before all risk of frost has passed; then the annual pruning of every point, the constant attention in affording water, and in many other respects these plants requiring much care.

M. Ed. Dercyghere Van Compernelle.—In this compact and well-kept nursery, whose English-speaking proprietor is so well known to British nurserymen visiting Belgium, there are always

numbers of plants remarkable for excellence of cultivation, or which are out of the ordinary run of nursery stock. At the time of our visit we found there numerous pretty plants of *Livistonia rotundifolia* in several sizes, and all of uniform good quality; another special feature was several housefuls of *Phoenix canariensis*, a variety of comparatively dwarf and dense growth, and said to be a great favourite for the decoration of dwelling-houses. *Raphis aspera* and *R. a. nana* were two striking Palms, which multiply at a very rapid rate by offshoots from the base.

Other noteworthy stock comprised *Aspidistra lurida variegata* and seedling *Cliveas*, with very fine flowers. In the open ground, Lily of the Valley for selling in clumps for forcing are well and extensively cultivated. The view of some old ruins on the other side of the moat, and around which the yellow and lilac Primroses and other wild flowers were luxuriating prompted questions as to the former history of the place, and we were informed that where the nursery now stands was the cemetery adjoining a monastery which stood there about the year 1300 A.D.

L. LINDEN ET CIE., MOORTEBEEK.

An unusually interesting group of Orchids from Brussels, exhibited at the last meeting of the committees of the Royal Horticultural Society, was awarded a Silver-gilt Medal. Every plant it contained was remarkable for the perfect cultivation it presented, and for its value as a desirable variety. Exactly one week previously, we had seen most of the same plants, and many thousands beside, in the houses at *M. Linden's* Orchid establishment at Moortbeek, some 4 miles to the west of Brussels. We had travelled from Ghent, a party of five Englishmen, and as soon after arriving at Brussels as was possible, we presented ourselves at l'Horticulture Internationale in the Parc Leopold, where there was much to interest and admire. But before the Orchid-houses there had been thoroughly inspected, *M. Lucien Linden* telephoned from Moortbeek that there was much more to see at that place, and invited us to proceed thither at once.

Those who have visited the magnificent City of Brussels of late years will know that we might have proceeded thence by the excellent trams, that open up the beautiful boulevards and principal streets of the city and suburbs. Indeed, the systems of tramways form one of the most striking features a visitor to the city can remark. Time being short, however, we proceeded in cabs over roads that seemed to traverse most of the few hills Belgium possesses. The route is a very pleasant one, and the roads generally are of great width. As we approach the *Chaussée de Ninove* it is seen that the nursery is situate perfectly in the country, on a plateau where one would expect the air to be—as indeed it is—comparatively free from urban influences.

The Moortbeek Orchid-houses consist of a large central glass building, running at right angles from the road, and fourteen span-roofed divisions opening into this, seven upon either side. Several of these were filled with *Odontoglossums*—such plants as are worth travelling some distance to see. These healthy, vigorous-growing plants, more than surprised our party, although each of us were familiar with the best collections in England. Yet, it is only two years since this establishment was built, and therefore the specimens had been established for a very short period since importation. We may explain that the seven houses were connected in the typical Belgian method, the span between each division only descending to about 4 feet from the floor. By stooping a little, one could see the plants right away through, and we thus saw a collection of about 53,000 *Odontoglossums*. From every point of view these were satisfactory, whether one looked at the plump, solid pseudo-bulbs last made; at the thick, stiff, partially purple-coloured foliage; the strong, vigorous growths just breaking away; or the forest of spikes that will soon bear a display of blossoms. The species *O. cirrhosum* especially was remarkable for its wealth of flower-spikes. A batch of them occupied one side in a division, and we have never seen this Orchid happier.

The spikes were very strong, some were 2 feet or more high, and many of them in bloom, exhibited varieties of exceeding value. But our attention was soon absorbed by the collection of *Miltonia vexillaria*. These were a picture, the young growths developing as freely as a vigorous *Cypriped* might be expected to do; there were no crippled leaves, no sign of spot, or other result of unsuitable environment. One of these since shown at the Drill Hall, was a magnificent picture of successful cultivation and excellence of variety. It has been named in remembrance of the late *J. Linden*, and had six spikes bearing thirty-two flowers, some of these about 3½ inches across, and rich rose-coloured. Of *Odontoglossum crispum* we can only speak in the same appreciative terms. The plants throughout were in every sense perfect. So much so, that we asked *M. Linden* if he had any explanation he could give. Had there been any manure used? "None whatever," replied *M. Linden*, "there is nothing unusual in the treatment. The plants have been given nothing but peat, sphagnum-moss, and water, but the water of the district is doubtless peculiarly suitable to Orchids." Of the many particularly fine forms of *O. crispum*, one known as *Comte de Flandres* had large flowers of exquisite form, each sepal being heavily blotched, and the petals white. Then there were many pretty *Odontoglossums*, that were evidently hybrids between *crispum* and *Wilckeanum*, and *crispum* and *Hunne-wellianum*, and others whose pedigree it was difficult to declare. *O. Princess de Canaries* was such a hybrid; it had bright canary-yellow coloured flowers, with purple-red spots, and a white fringed lip. Some exceedingly pretty forms of *O. Wilckeanum* were remarked, most of them perfectly distinct, and bearing names, but we had not time to note carefully each of these. A word is deserved by a plant of *O. luteo-purpureum luridum*. The spike carried sixteen fine flowers, which were remarkable for the prevailing colour of deep brown, being strikingly distinct in this respect. A very lovely variety of *O. Pescatorei* was named *Roi Leopold*; the flowers were large, pure white, and each petal and sepal bore several violet or purple blotches towards the points. It was impossible to linger more, even to admire the lovely forms of *Odontoglossums*, and we were soon face to face with the *Cypripeds*. In the first place was a magnificent group of plants of *C. Lawrenceanum*, presumably the greater part of a thousand in number. At first glance they looked like a group of ornamental foliage plants, they were so vigorous and the marking so distinct. Against this view, however, were the numerous flower-spikes and large blossoms, the spikes in many cases being about 20 inches high. We afterwards went to inspect the many hybrid *Cypripeds*, and the recognised species and varieties. One of the most beautiful hybrids was *C. × Lebaudy-anum superbum*. The sepals were wide, and the ground colour white, marked much with chocolate, petal long, and twisted a little, green at base, spotted with purple, points exclusively purple, the prevailing colour of lip, green. *C. Rothschildianum platytænium* was observed to be a very striking plant. The *Cattleyas* generally were only showing sheaths, but from the strength and number of these, it is certain a fine show will be made a little later. Those already in flower included some excellent forms. *C. Mendeli* especially was very fine. A variety named *The Pearl* was almost white, but one could easily detect a faint blush, for which the flower was prettier than a pure white would have been. *Cymbidium* looked as well as the species already noticed, and *C. Lowii superbissimum* was a very large richly-coloured form of this popular plant.

NATURAL ADVANTAGES.

The continued anxiety of the Englishmen to find an explanation of the apparent case with which Orchids (and especially *Odontoglossums*) are cultivated at Moortbeek, led us to make many enquiries, but all the explanation forthcoming was that of suitability of site. Said *M. Linden*, "I believe there is not a better site in Belgium for the cultivation of *Odontoglossums* than is Moortbeek." How came *M. Linden* to go there? Here is the answer as nearly

as possible as we received it. Immediately opposite the establishment is a gentleman's residence, and M. Linden had noticed that the Odontogloss in this garden succeeded better than in his own, although they were cultivated under M. Linden's direction. In conversation with this gentleman, who was also the owner of the land where M. Linden's establishment now is, M. Linden expressed his conviction that the secret lay in the water or site, or both. The gentleman's reply was, "Take a lease of some land opposite, and see."

This was done, and the result in two years is such that one would not realise unless he saw it. We examined the boilers, which are horizontal tubulars, and also two new houses not yet filled with plants. Everything was skilfully done, and nothing without a reason, but there were no great differences from

generation from seed. A good blossom measures 2½ inches, and in special instances of 2½ inches in diameter have been remarked. The plant shown at the Drill Hall on April 26 last, had been reared in natural soil, without any fertilising food whatever. It was exhibited at the shows of the Royal Horticultural Society, in April of 1891, April of 1894 (awarded "Merit"), in 1896, and in 1897.

The plant is obtainable of Mr. G. Parr, Estate Office, Hampton Court, Leominster.

OUR TREATMENT OF A SWAMP.

A PORTION of the great pool formed here, about 140 years ago by Lancelot Brown, got so silted up at the narrow end by the inflow of a muddy stream, that it left the breadth we have to deal with—200

the problem given to us to work out. The idea of introducing a dredging-apparatus and spreading the mud on the land adjoining was abandoned on account of the expense; so the next best and cheapest way of dealing with it we thought to be to separate the land from the water, by forming long ridges of land, the spaces between being filled in by canals of water. The ridges average from 2 to 3 feet above the level of the water area, the water depth to about the same. The water in these canals stands exactly at the same level as the surface of the water in the great pool; the water of which was, of course, lowered during the time we were engaged in this, to me, very interesting operation.

In times of flood, or as a Scotchman would put it—when there was a "spate in the burn"—the water, as I have already said, overflowed the entire space we have to deal with. To obviate this we resorted to the canal-ridge system, connecting the canals with the inflow of the feeding-stream; this arrangement gives a nice gentle flow through all the canals, preventing any chance of stagnation, and also the danger of any further overflow.

Within the space we had to deal with, there lay a couple of islets left there by Brown during the time he was engaged forming the great pool of about ninety acres, on one of which there is a heavy plantation of Scotch Fir, also Beech and Larch, which is strong evidence of what an extraordinary weight of timber a small space will yield. On the other islet are six nicely-grown Hawthorn-trees, which, when in bloom in May, are a picture worth looking at, having an undergrowth of Cow-Parsnips, Lords-and-Ladies, Nettles, &c. These botanical specimens are now giving place to a liberal sprinkling of Narcissi, Snow-drops, Crocus, Iris, &c.

Having given a description of how we separated the land from the water, by which stroke we secured over the space, and also in the neighbourhood, a sweet healthy smell instead of the pestiferous one we displaced, I come now to the question as to how this singularly arranged space of water and land should be planted. At present it is simply canals of water and ridges of land. We propose planting the canals with some of those new hardy hybrid Nymphaeas; the only one of these we have is that of Cape Cod variety, which I had a few years ago from my friend Mr. Brydon, of Yarmouth port, who is so successful in flowering many varieties of Nymphaea out-of-doors, including the Victoria Regia. A photograph Mr. Brydon sent me I enclose, but only as a specimen of outdoor culture in a proverbially cold windy district.

The ridges we purpose planting partly with Rhododendron, varieties of Spiraeas, ornamental Willows, deciduous Cypress, Pampas-grass, Iris, variegated Elders, Acer, &c. It will be needless to plant Bamboo, as the common Reed grows here in great luxuriance; the difficulty is to keep it within bounds, as it leaves its swampy bed and marshes upwards and onwards on to dry land, coming up even through hard gravel walks. If any of the readers of the *Gardeners' Chronicle* would kindly give a supplementary list of plants they could recommend for the purpose of planting the ridges, I should be pleased and grateful.

My treatment of the subject has so far met with the approval of the Earl of Craven, that his lordship desires another and greater breadth of swamp to be similarly treated as soon as opportunity permits; though it seems a pity, after all this labour and expense, that these canals, by the continuous inflow of mud brought down by the stream, will, in the course of a few years, be again silted up, necessitating a fresh digging out if they are to be kept free. To obviate this, I have surveyed an entirely new route for the stream, which, when the river-bed is dug out, will be a full mile long, and will carry the water, all the mud and sewage brought down therewith, completely past and beyond the outlet of the great pool. The pool would then be fed from the stream only when the water was clear; when foul, it would be sent down the new cutting. There are sundry springs along the shores of the pool, which would help to supply it with fresh water. This suggestion is



FIG. 106.—GIANT PRIMROSE "EVELYN ARKWRIGHT": COLOUR PRIMROSE-YELLOW.

other growers' houses to account for the success. We may say, however, that the stages are not solid, but air, heat, and moisture can circulate upwards amongst the plants. In the fourteen houses we have referred to, a tank of water runs along the length of every alternate one, consequently water can be reached from each, and the moisture from them, of course, circulates through the whole range. Thus we saw Moortbeek, and our experience is well given in a remark made by one of our party as we drove back to Brussels, "I have had no such lesson in gardening as I have had to-day for a very long time." R. H. P.

THE GIANT PRIMROSE, "EVELYN ARKWRIGHT."

This Primrose (fig. 106) was found wild in Dinmore Wood, Herefordshire, in 1887, and the stock raised from the original plant, has kept its character to the third

yards long by 90 wide—in a state which could neither be described as being land or water. During summer evenings, especially when the weather was hot, the surface of this unpleasant-looking swamp gave off most evil miasmatic effluvia, and bordering as it does on a portion of the pleasure-ground, was by nervous people studiously avoided.

The river-bed was almost grown up, what with the mud brought down by itself in times of flood and the encroachments of the common reed, Arundo phragmites, several species of the Carex genus, and many other aquatic and marsh plants of the Midland counties flora, in which the pool and its shores are so exceptionally rich, that the lines of Burns were sadly inappropriate to the case when he says—

"Time but the impression stronger makes,
As streams their channel deeper wear."

The question of how to make this portion of the pool healthy, and at the least possible expense, was

thoroughly approved of, and will in course of time be carried out, though not, perhaps, until after I may have passed away to the "land o' the leal."

A portion of the pool here was cleaned out in 1863, and on several occasions previous to that date. The operation is an expensive one, and as time goes on the expense becomes greater. On this account, I am afraid many of our lakelets are being allowed to silt-up, and in this state are a great deal more unsightly than if they had never been formed at all.

Wisdom is only got by experience, and it is always an easy matter to be wise after the event. Had it been foreseen at the time these pools were being formed that they would so soon become silted-up, necessitating almost the cost of remaking to clean them out, the first cost of making an independent river-bed or by-pass might have obviated much of all this. Of the finny occupants of these waters, of its feathered fauna, of its aquatic and lake-shore flora, I may some day speak in another chapter. *W. Miller, Combe Abbey, Coventry.*

FLORISTS' FLOWERS.

TOO-MUCH-ALIKE CHRYSANTHEMUMS.

It has become necessary for the National Chrysanthemum Society to adopt a similar practice to that followed by the National Rose Society, and prepare as an instruction to the exhibitors at their shows, lists of varieties which so nearly approach each other in general appearance as to justly come under the head of too-much-alike varieties. The resolution adopted by the executive committee was as follows:—"Experience having shown that several Chrysanthemums classed as distinct varieties are much alike when staged for competition, it has been found advisable to lessen the risk of duplicates being shown in classes for cut blooms in which they are required to be distinct; therefore, in the cases of varieties that at certain stages of development closely resemble each other, the blooms exhibited must in classes for distinct varieties, be sufficiently diverse, so as to be readily distinguished by the judges. It was referred to the Society's classification committee to draw up this list, and they have selected the following as so nearly approaching each other in general appearance that they must not be shown on the same stand:—

Incurved Varieties.

C. H. Curtis	John Salter
Major Bonafon	Mr. Howe
Duchess of Fife	Lady Dorothy
Mrs. Airdrie	Charles Gibson
Empress of India	Lord Alcester
Lady H. St. Clair	Princess Imperial
Mrs. Cunningham	Miss M. A. Haggas
Snowball	Richard Parker
White Queen	Mrs. Heale
Golden Empress of India	White Princess
Bruce Findlay	Mrs. George Rundle
Golden George Glenly	Mrs. George Parnell
Mrs. Dixon	Princess of Teck
Mrs. C. H. Glover	Charles Shoemith
John Doughty	Christmas Number
Mrs. Robert Mudie	Princess of Wales
Bronze Queen of England	Beauty of St. John's Wood
John Lambert	Mrs. Heale
Golden Queen of England	Queen of England
Emily Dale	Blush Queen of England.
Emily Dale Improved	

Japanese Varieties.

G. J. Warren	Sunflower
Yellow Madame Carnot	Stanley Yellow
Mrs. C. Blick	W. Slogrove
Mrs. Richard Jones	Improved W. H. Lincoln
Pride of Madford	T. Selwood.
Beauty of Teignmouth	

This report is published in the Schedules of Prizes just issued, and should have the close attention of intending exhibitors. *R. D.*

THE WEEK'S WORK.

THE FLOWER GARDEN

By H. WALTERS, Gardener, Eastwell Park, Ashford.

The Rose Garden.—All varieties of Tea Roses should have been pruned ere now, and the mulching which was placed on the beds or borders in the autumn lightly forked-in, taking great care not to injure the

roots of the plants. Let all growths of climbing Roses on chains or arches be secured from time to time as required; also fasten with rails and shades, willows, or tarred-twine the shoots of Roses growing against walls, fences, espaliers, so as to prevent injury by wind. The recent rains have had a very beneficial effect on the growth of Roses, and hybrid perpetuals in many gardens are making robust growth. Let a sharp look-out be kept for the Rose-maggot, which must be collected by hand; and sprinkle with tobacco-powder all shoots infested with green-fly. If the Rose garden is under grass let the latter be mown and the edges of the turf neatly trimmed; and the various walks well rolled, so as to make them comfortable to pedestrians. Gloire de Dijon and other early-flowering Roses, in sheltered places are already showing flower-buds, and if genial weather should continue, blooms will be expanded in a week or two, rendering the Rose garden of much interest, the first Rose being as attractive to most of us as the last one.

General Remarks.—The plants and bulbs usually associated together in the spring garden will now be in full bloom. The *Myosotis*, with its ever pleasing blue; the bright pink of the *Silene*; the *Wallflowers*, with their golden-yellows and dark reds, and their delicious perfumes; the *Tulips*, with their vivid hues, and many others, all tend to enhance the beauty of the garden. This is the season for taking notes of desirable alterations and changes to be carried out next year, and observing suitable harmonies and contrasts of colour; what plants make suitable carpets for flowering plants, &c. The planting of *Calceolarias* should be done as early in this month as possible, using great care in the planting, and endeavouring to preserve intact the balls of soil and roots when lifting and planting them. Let them be firmly planted, and sprinkle them overhead every evening when the day has been dry with a fine rose-can or the syringe. This may be carried out for a fortnight after planting, and be sure that the soil of the bed is soaked with water previous to lifting the plants from it. Continue to sow annuals, and to prick out all plants which require it. The gradual hardening off of many of the subjects used in the summer flower-beds will soon have to be commenced. This simple operation must be carried out with great care, as too great or too sudden exposure will ruin many plants. I am aware that this matter, like many others in connection with gardening, is considerably easier to write about than to practice, for most of us have few proper means of hardening off plants by degrees. A satisfactory shelter can be erected with a few posts driven into the ground, and battens fixed across the space to support garden mats or Frigi Domo, with broad boards nailed round the enclosed area. The difficulty to be encountered is the removal of the coverings by the wind; but this can be got over by passing cords over them, and securing these to the posts. Plant out Stocks this month, and do not leave them in the frames till they become drawn. Choose a showery day for planting-out, or afford water copiously, never minding how small the plants are at the time of planting, providing they are healthy, and have been thoroughly hardened-off; and take care to afford the plants water previous to lifting them. Stocks like manure and deep digging, but do no good in poor soils. *Zinnias* are now commonly grown for bedding-out, and should be afforded water in not too great abundance, being very apt to damp-off. If the stock of *Alternantheras* is insufficient, cuttings may still be taken, and dibbled in to sandy soil above a half-spent hot-bed, and allowed to remain there till wanted for planting out, hardening them off after they are rooted.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

Runner Beans.—The soil, having acquired a little warmth, the first out-of-doors sowing of Runner Beans may be made in drills 3 inches deep, and from 5 to 6 feet apart on trenched, and well-manured land. In private gardens, it is better to furnish sticks for the Beans to climb, as then the crop is larger and the pods clean. The plants can, however, be grown dwarfly, so that sticks are not actually required—which is done by nipping off the points of the shoots every eight or ten days during growth, beginning to nip them when a height of 2½ to 3 feet has been reached. If very early Beans are desired, seeds may be sown in 6-inch flower-pots, placing these in a structure having a temperature of 45°, and gradually harden-off the plants preparatory to transplanting them in the open. For general crop-

ping—Painted Lady, Champion Scarlet, or Carter's Jubilee, are the best. To have fine pods for exhibition purposes, it is best to sow in trenches prepared as for Celery, the varieties, Sutton's Best-of-All, or Veitch's Mammoth Scarlet.

Broad Beans.—When the stems of early Mazagan Bean have reached 2 feet in height, and begun to show blossoms, let them be topped to such an extent as to leave a sufficient number of pods on the stalks to form a crop. This topping not only makes the pods swell faster, but it forwards them by at least eight days as compared with untopped stalks. If the ground is dry, afford plenty of water at the root; and during the present month sow once again.

Outdoor Tomatos.—The plants raised from seeds as directed in former Calendars will soon be sufficiently hardened off for planting on outside fruit walls, in the spaces between the trees, and in warm positions away from walls. If the soil is exhausted, let a little rotten manure be mixed with it before setting out the plants. Place a stake to each, and stick a few evergreen twigs around as a protection against cold. Tomatos in the open air in this country must be kept to one stem, and when four or five clusters of fruit are set, nip out the leader, and repress all lateral shoots. As the plants progress, afford manure-water occasionally, or apply a mulch of partly-decayed dung, but do not aim at great robustness in the plants, moderately strong plants being the heavier croppers.

Gherkins and Cucumbers for Pickling.—The surest method with these is to sow the seeds in flower-pots, one or two in each, placing the pots in a cold frame or handlight, not forcing them in any other manner, as the best pickling fruits are produced without the aid of a hotbed from the first. The plants should be ready for planting on to a warm border towards the end of this month or in early June. Let the stations or ridges be prepared to receive the plants betimes, and afford the plants a shift rather than let them become potbound if the weather is unfavourable for planting.

Remarks.—Thiu out Parsnips, Turnips, and Carrots, and draw some soil over the Potato-haulm that is showing above-ground, to prevent injury by frost; and on the first fine day pass the Dutch-hoe between the rows of spring-sown Onions. Spring-raised plants of Brussels Sprouts, Cauliflower, and early Cabbage should be planted out during showery weather.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorking.

Celogynes.—Plants of the well-known *Cologynae cristata* and its varieties, *Lemoniana*, *Chatsworth*, *maxima*, and the white variety *hololeuca alba*, having now rested sufficiently long, and commenced to grow, additional rooting-space may be afforded them, and inconveniently large specimens, as well as those that are bare in the centre, may be divided and repotted. It is not, however, advisable to disturb these plants at all if they are in a satisfactory condition. The pseudo-bulbs that have got over the edges of the pans or pots may be severed with several of the older bulbs to which they are attached, and potted up so as to make one or several compact potfuls, and the old plant, if not further disturbed, will break and send out strong young growths. For repotting *Celogynes*, make use chiefly of good turfy loam and peat, sphagnum-moss in proportion equal to these two, mixing all the materials with clean crocks, and be innsure that the drainage is perfect, great quantities of water being necessary in the growing period. If a plant has been disturbed at the root, the pseudo-bulbs will often shrivel, but the plant must not be deluged with water with the idea of inducing plumpness; too much water at such times being death to the old roots, and a cause of loss of health. Instead of heavy watering at such times, let the plants be syringed occasionally, and the surfaces and sides of the pots damped three times a day, and carefully protect the plants for the time being from strong sunshine. When growth is developing nicely the roots are active, and water may then be gradually increased in quantity. Plants of *C. Mas-sangeana*, *C. flaccida*, *C. tomentosa*, *C. barbata*, *C. graminifolia*, *C. conferta*, *C. ocellata*, *C. speciosa*, *C. elata*, *C. Cumingi*, *C. sparsa*, *C. corrugata*, *C. Rossiana*, *C. Thuniana*, *C. Gardneriana*, *C. odoratissima*, *C. corymbosa*, and *C. glandulosa*, now making a start, may be repotted. For the first three species, hanging baskets are the best, as in these the racemes are seen to more advantage than in pans. All the *Celogynes* mentioned above thrive in a shady part of the interme-

diat-house, rooting freely in well-drained peat and sphagnum-moss. The fragrant *C. Sanderiana*, on the completion of the new pseudo-bulbs, should be placed in a cool-house and kept moderately dry at the root till growth begins anew, and if a slight shrivelling of the pseudo-bulbs occurs, no harm will be done. The tips of the young breaks of *C. conferta* are sometimes covered with a gummy substance, which should be washed off, or the leaves will not expand.

HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Peaches and Nectarines.—The disbudding and stopping of the shoots should be completed without loss of time. In disbudding, the best shoot at the base of each bearing-shoot of the current year should be left as the bearing-shoot of next year, and these shoots be tied with a broad piece of matting in the direction they should take. If possible, they should be situated on the upper side of the bearing-shoots for fan-trained trees. Any Peach-trees that have been trained in previous years in other methods, should be gradually altered till they assume a symmetrical fan-shape, and provision can now be made by leaving the terminal growths at full length on all properly-placed branches where room for extension exists; stopping the points of those that are situated on the wrong side of the main branches, and all weak shoots of which it is not advisable to allow the extension. In disbudding the Peach, some gardeners pull off every shoot except the one at the base of the shoots and the terminal growth; this, however, denudes the tree too much of foliage at a critical time, that not enough is left to keep the fruit progressing, and if unfavourable weather should occur a large proportion of the fruit may drop off. It is a more prudent proceeding to leave some of the current season's shoots at intervals of 6 inches along the branches, stopping them at the fourth leaf if they are not required for laying-in. The Peach or Nectarine on outside walls seldom requires more than one piece of young wood to be left on each branch, unless the tree be young and vigorous, when two may be left to grow in addition to the terminal; and these two should be situated at about 18 inches apart along the branches. In Peach culture it is very necessary to guard against overcrowding the trees with young wood, which eventually shades the fruit, and robs it of colour and impairs flavour. Moreover, the bearing-wood for the following season is rendered weak and immature. Blistered leaves should be removed without delay, as they are apt to harbour insects that are very difficult to dislodge. In the case of trees badly blistered their removal must be gradual. Tobacco-water forms the best remedy for green-fly; but as its strength varies a great deal, it should be tested upon some young shoots a few hours previously to using it on the trees. One fluid ounce to one gallon of soft water is usually sufficiently strong. The effect of a too strong solution is to fetch off the leaves and the fruit. Royal George is a variety that is much subject to be attacked by mildew, and whenever this parasite appears, the affected trees should be syringed with a weak solution of Gishurst Compound soap not exceeding 2 oz. to 1 gallon of water, allowing it to remain on the leaves. This kind of soap is one of the best antidotes for red-spider. All insecticides should be applied to the trees in the evening, and in fine weather, for the foliage of the Peach being very tender at this date, is easily injured. Nets and covers should still be put over the trees at night, cold winds, especially those from the east, conducing to mildew and the attacks of aphides. Remove all undersized fruits where set very thickly, also such as are badly placed, leaving the largest at 3 inches apart.

PLANTS UNDER GLASS

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Tree or Perpetual Flowering Carnations.—The plants of such varieties as Miss Jolliffe, Winter Cheer, and others raised from cuttings last year, and now standing in 6-inch pots, will be ready for shifting into others 2 inches larger, and those raised from layers should be planted in large 60's or 48's without delay, placing them afterwards in a cool, light, airy frame, affording water at the root with great caution, and pinching the points of the shoots in order to induce more bushiness. Cuttings struck in thumbs in heat should be hardened off quickly, and shifted into 60's, large or small, according to requirements, as soon as well-rooted. It is not too late to strike cuttings of the winter-flowering varieties.

The Margaret Varieties of Carnation are very useful in the autumn, winter, and spring, either in pots

for decoration or planted out in a pit for cutting purposes. Seedlings of these, when furnished well with roots, may be potted into 60's, preparatory to planting them in the cold pits, at 15 inches apart each way. It is advisable to grow two or three successional batches of these plants.

Campanula calycanthema.—As a pot plant the Canterbury Bell is well worthy of cultivation, the flowers of the single and semi-double varieties lasting a long time in good condition. Seed may now be sown in pans, and the latter placed in a cold frame to germinate. When the seedlings can be handled conveniently, prick them off an inch apart into other pans or into boxes; and when they possess a good ball of roots plant them on to a border, there to remain till the autumn, and in September pot them up. *Campanula pyramidalis* and *C. p. alba*, afford charming subjects for the decoration of conservatories and greenhouses if they are grown similarly to the preceding.

Primula obovata.—When the seedlings are of a suitable size, transplant them from the seed-pans into boxes at 1 inch apart, in a soil consisting of equal parts of loam and leaf-mould, with a liberal quantity of sharp sand added, place them in a warm greenhouse, and afford slight protection against bright sunshine. Later, cold-frame treatment is required.

Dracenas.—Plants which have been raised from stems and roots, may be potted into 60's, using a rather sandy, peaty soil, and be placed in a warm close frame with shading over them during the sunny parts of the day. Here the plants should remain till active growth ensues. Cuttings of *Dracenas* will strike at any season, also tops of leggy examples; and the nodules found at the roots of most of the species may be extracted and potted at any time. After potting, or any other root disturbance, water should be cautiously afforded for a fortnight or longer time according to the season of the year. The tropical *Dracenas* like a moist not too well ventilated house, and to be shaded from strong sunshine; fixed shading on the contrary is against the colours of the leaves being brought out perfectly. *Dracena (Aletis) fragrans*, *D. australis*, and *D. indivisa*, being natives of the warm temperate climes, succeed under ordinary greenhouse treatment. Although these are improved by steam treatment after being repotted or otherwise disturbed at the root. The genus is valued in gardens for the beauty of the foliage, and no effort should be spared to keep this free from thrips, red-spider, scale, and dust. If the water supply of the place is chalky or clouded, it should not be used for syringing these plants.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Pot Vines.—Those Vines which have ripe fruits upon them which is required to last in good condition for some time longer, must not be exposed to much heat, and should be afforded a considerable amount of top and bottom air in fine weather, closing the house in rainy or misty weather, and at such times affording a trifling artificial warmth. Ascertain by daily examination which plants require water at the root, never allowing the foliage to suffer from lack of moisture in the soil so long as the Grapes are hanging on the Vines. All surfaces should be moistened on fine days, in order to lay the dust. Pot Vines, when the bunches are cut, should be thrown away, as they are of no further use. In order to pack Grapes to travel long distances, the boxes used by Covent Garden Market growers are very suitable, these being made of light wood 18 inches by 12 inches, and 3½ inches deep inside measurement; in these the bunches are packed closely, and rarely get damaged if at the bottom a thin layer of wood-wool or Vine-leaves be placed, and over this a sheet of paper. The packer should begin at one end, laying in the bunches of Grapes one after another, until the box is quite full, laying a sheet of paper over all, and filling in all spaces with wood-wool.

Permanent Vines.—If the bunches are colouring, make moderate use of the heating apparatus by day and night, and afford ventilation freely when the days are favourable, also give a little air at night, except in very boisterous weather. Theinery at 6 A.M. should have a temperature from 65° to 70°, and as soon as the warmth rises 5°, ventilation at the top may, if the weather be fine, be increased; and again when 80° is reached, at which figure, or 85°, it may be kept. In the afternoon let the ventilation be decreased according as the temperature falls; at all times avoiding a sudden rise of temperature, which may cause moisture to condense on the berries. On dull days keep the hot-water pipes warm, and maintain a

temperature of 73° to 75°. As the colour in the berries increases, afford less moisture in theinery until fully coloured, and do not damp down unless the temperature is up to the required figure by either sun or fire-heat. The swelling of the berries goes on with the colouring, consequently there must be no lack of water of the roots, and heavy applications of water will be necessary in well-drained borders, but less in heavy loams and deep ones till the crop is ripe. If the outside border was covered with tree leaves in the autumn it may now be almost stripped of these, leaving merely a few as a mulch. If the border is found to be lacking in moisture, afford a copious application of clear water; or if the border is known to be in need of manure, add one-half farmyard liquid-manure. On Vines carrying fruit, reduce the number of laterals; and if red-spider should appear, wipe the infested leaves with a sponge and soap-and-water. It is well not to apply sulphur to the hot-water pipes before the berries have stowed. Let all bunches be thinned when the berries are very small, thinning more severely those Grapes that will have to furnish the winter dessert, so that the berries do not touch each other when full grown.

The Latest Vinery.—Remove surplus shoots, stop laterals and leaders, and secure a sufficient number to cover the trellis. If red-spider appears before the Vines come into flower, use clean water and the syringe night and morning; and attend carefully to damping-down at frequent intervals.

THE APIARY.

By EXPERT.

Seasonable Hints.—Plenty of indoor work, which should not be neglected, will now be found to occupy the spare hours of the evening. As spring advances, time becomes more precious, and everything which can be got ready now will save time in the future—sections, supers, and frames may be fitted with foundation ready for use, and stowed away till wanted. Provide a few "frame-holders," i.e., rough boxes without top or bottom, made of half-inch stuff; they must be of the same dimensions as insides of the hives used, and are very useful for holding frames fitted with full sheets of foundation, or when extracting.

Query: Sending Swarms by Post.—1. In reference to swarms of bees being allowed now to go by parcel-post, do you think it will be a good way of sending them—for the welfare of the bees, I mean? It will be quicker than the ordinary passenger-train, but will the same care be taken of them as to ventilation and bumping about? If sent in a light box, a swarm would not exceed the limit weight of 11 lb. 2. If brood is "wired," is it necessary to have the top bar of the frame grooved or slotted with saw? What is the drawback to having a wooden comb-guide projecting three-sixteenths of an inch to which the foundation, after wiring, is made to stick by pressure? It has the advantage that the wax-moth cannot get at any wax projecting to the top-surface of frame under quilts, and looks a quick way of fixing. 3. Would four large syrup-bottles, arranged on a feeding-stage, with cheese-cloths over their mouths, the wooden panel they rest on being pierced with many holes, be as effective as an ordinary rapid feeder? It seems to me that by standing the stage I suggest direct on the frames, and packed warm over the bottles and round the stage, the bees would feed nicely. I would, of course, put on the usual quilts over feed-hole, but keep the quilts covered where stage rests, and have a thin board for the bees to walk on, as they would object to the quilts. This latter way would be easier to pack warm.

Reply.—1. We should never advise sending swarms of bees by post, nor do we think that any experienced practical man would think of doing so. Passenger-train is the proper conveyance for swarms. The real advantage, so far as bee-keepers, of the new postal arrangement is being able to send queens with a few bees by letter-post for a penny. 2. The proposed "wooden comb-guide" will no doubt answer the purpose, but inserting the top-edge of a sheet of foundation in the saw-kerf is so much safer when done, that we fear the wooden-guide will never find favour with those well up in bee management. The wax-moth has no terrors for bee-men who keep only strong colonies. 3. This is another point which only personal trial will decide. The four bottles can we doubt be made to answer the purpose, but, to our mind, not nearly so well as by using a rapid feeder of good type. With the latter, a stock can be made to take 10 or 12 lb. of food in a single night, while the fixing and filling is done in a very few minutes.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY,	MAY 7	Royal Botanic Society, General Meeting.
TUESDAY,	MAY 10	Royal Horticultural Society's Committee. Somersetshire Agricultural Society, Show at Weston (3 days).
FRIDAY,	MAY 13	Royal Botanic Society, Lecture.

SALES.

MONDAY,	MAY 9	Japanese Lilies, Palms, Herbaceous Plants, Palm-seeds, &c., at Protheroe & Morris' Rooms.
TUESDAY,	MAY 10	Imported and Established Orchids, at Protheroe & Morris' Rooms.
WEDNESDAY,	MAY 11	Palms and Palm Seeds, Orchids, Lilies, Border Plants, &c., at Stevens' Rooms.
FRIDAY,	MAY 13	Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—53°4°.

ACTUAL TEMPERATURES:—

LONDON.—May 4 (6 P.M.): Max., 57°; Min., 49°.

PROVINCES.—May 4 (6 P.M.): Max., 56°, N. Foreland; Min., 49°, Aberdeen.
Mild, rainy, dull.

A RECENT number of the *Semaine Horticole* contained an article, by M. E. ROMAN, on raising cuttings, on the ill-success which sometimes attends this process, and the reasons for such failures. The writer says that fungus often appears in a propagating-house and ruins all the new cuttings. Often, again, woody, or semi-woody cuttings seem for some time to be flourishing, and indeed are so above ground; but beneath, are slowly "damping off," and at last have to be rejected. It is then said that the gardener has over-watered his cuttings and caused them to rot, while he himself is always ready to throw the blame on the fogs.

Really the fog has nothing to do with it, but it is fungus growth that does the mischief. Every living creature originates in a germ, which develops only if in a favourable situation. These germs influence all the evolutions of organic matter. Animal or vegetable substances if left to themselves decompose only under the influence of these bodies, known as microbes. Eliminate the microbes, and there would be neither corruption nor decomposition. One of these beings, the septic bacillus, attacks animal or vegetable tissues in their entirety, when their life is just ebbing, or when they are injured or torn—the bacillus attacks them, lives at their expense, and produces in them the phenomenon of putrefaction. When this bacillus has done its work, "saprophytes" intervene, and transform the products of corruption into nitrogenous matters, which alone can be assimilated by the roots of plants. At

present we have no concern with saprophytes, but will consider them later on.

Septic bacilli are widely diffused in Nature. In soils constantly enriched with decomposing matters, the septic bacillus is yearly multiplied and renewed. This is why cuttings of delicate plants do not succeed in garden earth.

This bacillus is found less abundantly in peat, as this soil is not mixed with manure.

The leaves and roots composing humus decompose very slowly, and it is probable that the saprophyte microbes, which are mortal enemies of the septic bacilli, have had time to destroy them. Therefore, peat is very advantageous for cuttings; but river-sand is even preferable, as if it contains the septic bacillus at all, it is only by accident.

Scientific experiments, then, show us that cuttings do better in sand than in peat, and in peat than in mould. But the septic bacillus is in the air as well as the soil, and especially in that of cities, where it is vitiated by organic matter of every sort. If the atmosphere were free from microbes, boiled milk, for instance, would keep sweet indefinitely, as boiling would destroy any microbes existing in it. PASTEUR found that in pure mountain-air such matters kept fresh, sometimes for months, with no trace of corruption.

Watering plants may also infect them, as the water almost always contains the bacillus of putrefaction, either from contact with contaminated air, or because it contains organic matter susceptible to decomposition. These considerations may explain why our cuttings fail. A cutting planted in an aseptic pan, in very pure air, and given water free from microbes, would perhaps never root, but certainly would not rot; and at the end of an indeterminate time would be found in exactly the same state as when planted. We must, then, do all we can to secure such conditions. The first idea is to introduce into the water aseptic substances to destroy the microbes to be found accidentally in the pot, and in the surrounding air. Unhappily, we know no substance that would do this without destroying the vegetable tissues with which it came into contact. It may exist, and we are led to think so by the statements made concerning the effects of Bordeaux Mixture, in which most powerful antiseptic, if it saturate the soil, Grape-growers tell us that their Vines grow and vegetate vigorously.

The best, or rather the only means of staying the decay of our cuttings, is to take aseptic branches and bring them into surroundings made as aseptic as possible. Nothing hitherto has been contrived or even advised in this direction. The following precautions should be taken, they are dictated by the discoveries of PASTEUR and his successors:—

1. Cuttings should be taken from healthy plants, with very clean knives, previously plunged in boiled water. They should be planted at once to prevent the contact of the cut and torn tissues with the air around.

2. They should be planted in a small quantity of river-sand, well washed. The sand should be heated, to destroy any microbes it may contain, by previously placing it in an oven at a temperature of about 200° C. It should afterwards be kept until required in hermetically-sealed boxes.

3. For watering, boiled water only should be used, which has been put, while still hot, into well-stoppered bottles. Water from boiler-pipes might be used, as this is frequently raised to a temperature of 100° on account of frost.

4. The atmosphere may be beyond our power, but we can take certain precautions to prevent it from transmitting noxious microbes to our cuttings. Propagating-houses, especially when old, are perfect nests of microbes. Not to speak of decaying vegetable matter, the soil is permeated with germs, for which also the damp edges of the lights form an excellent breeding place. The air of these houses should be frequently renewed, and the glass wiped and kept clean on the inside. Fumigation by evaporation of tobacco-juice should be frequent. Experience has proved that, with the exception of certain rare and delicate Lycopods, plants bear nicotine fumes without sustaining any injury.

5. Bell-glasses are useful to keep off the surrounding atmosphere, and so reduce the chances of infection. The deposit which gathers upon them should be frequently wiped off. It would be interesting to try the old form of bell-glass, which, instead of a solid handle at the top, had a tubular hole running through it. This aperture could be filled with cotton-wool, which would ensure the slow renewal of air without risk of drying up the cuttings; and as to the microbes contained in the air inside the glass, it is proved that a fairly thick layer of cotton-wool will keep them off. The bell-glasses should be removed for as short periods as possible, in order to wipe off the damp deposit, or to prevent too great humidity. These precautions may seem trivial, but they would soon become habitual, and ensure complete success with plants hitherto found delicate, and not easily multiplied by cuttings.

Kew.

It is high time that those who value the Royal Gardens, Kew, for the unrivalled opportunities they afford for scientific or artistic study should bestir themselves. Their privileges are threatened with extinction. The regulations for the admission of students were given in our last issue. It must be admitted that they are reasonable. Moreover, we do not think that any obstacle is placed in the way of anyone who has the least claim to early admission as a gardener or student. We believe also that the regulations are interpreted in a liberal and considerate spirit. Last year about 10,000 visits were paid by those having the privilege of entry, and in no case was the privilege abused. We can ourselves from personal experience of many years testify to the extreme importance and value of the morning hours in the garden to those engaged in research.

Now, if the proposals for earlier opening to the public be carried out, there is the greatest possible risk that these privileges will be withdrawn, or so curtailed as very materially to diminish their value. This is what we have to fear. These are the conditions we have to face. Why, we ask, should we, who are taxpayers as well as students, be subjected to this deprivation? Simply that the residents in the neighbourhood may send their children and their nurse-maids an hour or two earlier into the garden, where they are safe from tram-cars and run-away horses. Visitors from London in the morning hours must necessarily be few, and for those who come on business, arrangement is made, as we have said. The claims of the student obviously very far outweigh the interests of the mere sight-seer or loungeur; indeed, the latter are not to be mentioned in the same breath with the former. The primary use of Kew is as a scientific institution. If it can be



FIG. 107.—ROSE HYBRID POLYANTHA 'PSYCHE': COLOUR PALE PINK. (SEE P. 281.)



utilised also as a public lounge, well and good, always provided that the interests of the students and the interests of those responsible for the proper maintenance of the garden are not jeopardised. Parks and pleasure-grounds, greens and commons have we, particularly in the immediate vicinity of the Royal Gardens, but there is but one Kew.

Italian National
Chrysanthemum
Society.

ONE of the latest developments in connection with the popular autumn flower is, as we learn from Mr. C. HARMAN PAYNE,

the formation of several new and important societies to promote its culture in various countries on the continent. The French National Chrysanthemum Society has well sustained its title. Last season the Amsterdam Chrysanthemum Club held its first show, publishing at that time a capital handbook for the use of visitors, containing the history and culture of the Chrysanthemum, lists of officers and exhibitors, and also the rules of the club. The movement has extended to Italy, and already the name of Mr. SCALARANDIS, gardener to his Majesty the KING OF ITALY, has become somewhat familiar even to English growers. From a circular recently to hand, we learn that a committee has been formed to carry out the necessary preliminaries for the formation of a society, having its head-quarters at Milan, to be called "La Società Nazionale Italiana di Chrysanthemisti." Briefly stated, the objects are—1. To encourage and perfect the culture of the Chrysanthemum in every way possible. 2. To promote exhibitions in various cities in the kingdom of Italy by offering subsidies, Medals, Certificates, &c., for competition. 3. To publish a monthly or bi-monthly journal devoted to the flower in all its phases. 4. To organise conferences, &c., so as to diffuse and spread abroad the love of the flower in Italy.

The Society will be founded so soon as a sufficient number of applicants has been obtained. The circular is subscribed by such well-known names as MESSRS. BRISCOE-IRON-SIDE, A. SCALARANDIS, RADAELLI, and LONGHI & SONS. The provisional president is Mr. SCALARANDIS.

ROSE PSYCHE.—The hybrid Polyantha Rose Psyche is a seedling from the dwarf Polyantha Rose Golden Fairy, one of BENNETT's introduction, crossed by Mr. O. L. PAUL with the pollen of TURNER'S Crimson Rambler. Its growth and habit, though more delicate, much resemble the Rambler. It is apparently quite hardy, and is very free flowering (fig. 107), but we fear not perpetual. The flowers are produced in clusters of from fifteen to twenty-five, and are 2 to 2½ inches across when fully expanded. In the bud stage they are very pretty, and well formed. The colour is white, suffused with salmon-rose and pink, with a yellow base to the petals. It is a real companion to Crimson Rambler. Plants in full bloom were shown at the Royal Horticultural Society's meeting, April 26, 1898, by Messrs. PAUL & SON, Old Nursery, Clapham, when an Award of Merit was granted the variety.

ROYAL HORTICULTURAL SOCIETY.—The next Fruit and Floral meeting of the Royal Horticultural Society will be held on Tuesday, May 10, in the Drill Hall, James Street, Victoria Street, Westminster, from 1 to 5 P.M. At 3 o'clock the Rev. Professor G. HENSLOW, M.A., V.M.H., will lecture on "Some of the Plants Exhibited." The Schedule of the "Show of British-grown Fruit," to be held at the Crystal Palace on September 29, 30, and October 1, is now ready, and can be obtained on application to the Secretary of the Royal Horticultural Society, 117, Victoria Street, S.W.

FRENCH NATIONAL CHRYSANTHEMUM SOCIETY.—At the conference held by this Society at Orleans last November, several papers on subjects relating to the Chrysanthemum were read by the members. A very full report of the proceedings was given in the Society's official publication, *Le Chrysanthème*, and the principal papers have now been reprinted in separate form, and form a brochure of thirty-six pages, with illustrations, and can be obtained from the publisher, M. OCTAVE DOIN, of Paris. These papers bear the titles of "Chrysanthemum Maladies and Parasites," by Mr. CHIFFLOT; "The Fertilisation of the Chrysanthemum," by M. GERARD; "The best Manures and Composts to Use in Chrysanthemum Culture," by Mr. H. FATZER.

CHRYSANTHEMUM SHOW AND CONFERENCE AT LILLE.—The Northern French Chrysanthemum Society will hold a Show and Conference at Lille on November 10 next. The Palais Rameau, a building well suited for the occasion, has been secured, and the co-operation of nurserymen and amateurs in France and abroad is solicited to make the event worthy of the Society. Visits to neighbouring horticultural establishments are to be arranged, and the schedule, now in course of preparation, will shortly be issued.

NATIONAL HORTICULTURAL SOCIETY OF FRANCE.—The Council of the Society has determined to organise a concert, followed by a ball, on Saturday, May 21, during the period of the Exhibition. The proceeds will be given to the fund established for the benefit of distressed gardeners.

AUSTRALIAN FRUIT.—The officials of the Peninsular and Oriental Steamship Company send us the following:—"We have received telegraphic advices from Melbourne of date April 28, of the following shipments of fruit, viz., by the *Ophir*, of the Orient Company, 22,000 boxes; by *Arcadia*, P. & O. Company, 9,700 boxes of fruit. The *Arcadia* is due about June 5. According to original arrangement, the *Ophir* is due on the 30th inst.

FLORA OF TROPICAL AFRICA.—We are glad to be able to announce the publication of another part of this very useful work. It will be remembered that from various circumstances the issue of this work was suspended for several years. It has recently been resumed, a commencement being made with the Monocotyledons. These being completed, the orders intervening between them and those already monographed will be dealt with in due course. The present part, like the one immediately preceding, is mainly taken up with the Orchideæ. Mr. ROLFE has here given us a complete monograph of tropical African Orchids. Some idea of the importance of this monograph may be obtained from numbers of species of certain genera; thus, of *Bolbophyllum*, there are 41 species, of *Megaclicium* 20, of *Eulophia* 65, of *Lissochilus* 83, of *Polystachya* 74, of *Angræcum* 48, of *Listrostachys* 52, of *Habenaria* 107, of *Satyrium* 33. *Diea*, a genus monographed by Mr. N. E. BROWN, counts 20 species within the limits of this flora. These figures may give some impression of the Orchid flora of the region as well as of the labour involved in comparing and describing so large a number of plants. The Scitamineæ, including the Zingiberæ, Marantæ, Cannæ, and Muscæ, are dealt with by Mr. BAKER, by whom also the Iridaceæ and the Amaryllidaceæ are monographed. We are by no means disinterested when we offer our congratulations to the Director of the Royal Gardens and his staff on the valuable addition they have made to the knowledge of African botany.

AN IMPROVED GARDEN HOSE.—The trouble experienced by many gardeners with garden-hose bursting, kinking, or rotting is met by another important improvement in this article by the firm of MINNRY-WEATHER & SON, 63, Long Acre. This firm has been successful for years past in manufacturing durable garden-hoses, which shall last more than a season or two in regular work. The latest method of securing durability for their hose consists of an external coating of fine quality rubber of substantial thickness, which effectually prevents the canvas plies being soaked with

water, as in ordinary hoses, and prevents rotting, which soon means the destruction of the hose. The ends of each length are also hermetically sealed with rubber to protect the canvas from water. To give flexibility, this has an internal coating of the best and most pliable rubber, and thus kinking and consequent stoppage of the flow of water, causing bursts in the hose, is prevented.

STEREUM HIRSUTUM.—Professor MARSHALL WARD gives, in the *Philosophical Transactions*, B, 1898, p. 123, an account of the artificial cultivation of this fungus from the spore to the development of the fructification, and of the manner in which the fungus attacks the wood of trees.

UNIVERSITY EXTENSION COLLEGE, READING.—The fourth annual report of field experiments carried out under the direction of Mr. DOUGLAS GILCHRIST in various localities, is a very interesting and instructive document. In addition to the reports of the experiments, of which a useful summary is given, there are suggestions for the appropriate manuring of certain crops, notes on various manures, their nature and use, the composition of foods, &c. A great deal of accurate and practical information is here given in a small compass, so that the document is well worth preserving for reference.

POLITICAL FLORAL DEVICE.—The *Weekly Florists' Review* (Chicago and New York) for April 7 describes and illustrates a political device carried out by a Cleveland florist, which will interest admirers of this style of decoration. A portrait of General MACEO was framed in green Galax leaves with crossed sabres at the top, crossed scabbards at the bottom, and American flags for background. In another corner was a large plaque of green Galax leaves bearing the Cuban flag traced out in white and red Carnations and blue Hyacinths. Carnations and Roses in vases supplied centre ornaments, and all were backed and framed with grey moss.

POTATOS.—Elaborate experiments on the manuring of this crop have been made, in conjunction with Mr. ARTHUR W. SUTTON, in Messrs. SUTTON & SONS' trial grounds at Reading, and at five other centres, a report of which is given in the fourth annual Report of Field Experiments made under the direction of Mr. DOUGLAS GILCHRIST, on behalf of the University Extension College, Reading. These all tend to show that Potatoes do best on land enriched with the manuring of previous crops; that on such enriched land the direct application of many artificial manures to the Potato crop may do harm, especially where there is a comparatively dry soil and climate; that on soil in rather poor condition the crop of Potatoes can be much increased by the judicious application of artificial manures. Potatoes do best on a rich, free, sandy loam, which contains a fair amount of vegetable matter, and are most successfully grown on soils which are in good condition. As a rule, potash manures increase the crop, although in certain instances the result may be otherwise. A useful dressing per acre for this crop has been found to be: Twelve tons farmyard-manure, 1½ cwt. nitrate of soda, 3 cwt. superphosphate, and 1 cwt. muriate of potash. It is preferable to apply the muriate of potash in the previous autumn; the superphosphate may be applied at the same time, or at the time of planting, and the nitrate of soda as two top-dressings in the early stages of growth. Early Potatoes receive more liberal treatment, and a larger amount of nitrogenous manures is generally applied.

FINGER-AND-TOE DISEASE ON SWEDES AND TURNIPS.—The results of experiments to find the best check for this disease, made at Headington, mentioned in the *Fourth Annual Report on Field Experiments*, carried out under the direction of the University Extension College, Reading, are of great interest. These show that this disease is most prevalent when the soil is deficient in lime, and that any form of lime—hot lime, chalk, or gas-lime, thoroughly mixed with the surface-soil—will do much to check the disease. Apparently, however, the lime must be applied to the soil a considerable time before the Swedes or Turnips are grown. Basic slag has to a small extent only checked the disease. On a farm

where this disease is prevalent an effective method of dealing with it would be to apply all farmyard manure produced from affected roots to those parts of the farm where Swedes and Turnips are not grown; to entirely stop growing Swedes or Turnips on the infected areas of the farm for a number of years; and to gradually give all these infected areas a careful dressing of some sort of lime. Swedes or Turnips should not be grown on these areas till about two years after the lime has been applied.

"THE ILLUSTRATED BOUQUET."—Comparatively few gardeners will remember the serial bearing the above title, and published by the now long-defunct firm, E. G. HENDERSON & SON, of St. John's Wood. It is a very showy publication, which appeared at intervals between 1857 and 1864, and the only fault one can find with it is that some of the subjects were a little overdone—a fault not unknown among other trade publications. It consists of three thin folio volumes, containing in all eighty-five beautifully-coloured plates, mostly representing two or more subjects. The first volume is dedicated to the Princess Mary of Cambridge. The work is apparently rare, or at least it is seldom in the catalogues, and not a single copy is offered in Quaritch's colossal catalogue of nearly 2400 pages. It is a fragment of the history of gardening and garden-plants of forty years ago, and recalls some pleasant memories of the past. The first plates represents the yellow Tea Rose Isabella Gray, and the second a group of eight varieties of Verbena. Next come hybrid Bouvardias, zonal Pelargoniums, Gloxinias, show Pelargoniums, Begonia Rex, Fuchsias, Achimenes, pompon Dahlias, Eucharis amazonica, Calceolarias, pompon Chrysanthemums, Clanthus Dampieri, Gazania splendens, Dianthus lacinatus, and a host of other showy plants, coloured in the very best style. The artists were Mrs. Withers, Miss Sowerby, and James Andrews, all three clever and painstaking flower painters. Kew has recently purchased a very fine copy of this handsome work. *W. B. H.*

MARKET GARDENERS' NURSERYMEN'S AND FARMERS' ASSOCIATION.—The subjoined letter tells its own tale. We trust that many others will follow the example of Mr. HOLLIS, and thus put an end to the uncertainty of the law relating to rating. It is evidently a matter of supreme importance to growers, and it now rests with them whether or not they will do their best to maintain their position or not:—

"I am glad your Association think of appealing to the House of Lords on the Rating case, and I shall be willing to subscribe 7 guineas, which is the amount I shall save on half-year's rate if the case is won. If other growers subscribe on same basis, the £1000 wanted will easily be got.

"(Signed), H. W. HOLLIS, Fruit-grower, Worthing."

DESTRUCTION OF A SEED AND BULB WAREHOUSE.—The extensive premises of MESSRS. WATKINS & SIMPSON, situated in Exeter Street, Covent Garden, were almost consumed in a fire which broke out on Thursday, April 28, in the early hours of the morning. The whole of the four stories of a building used as stores, offices, &c., were gutted, and the roof was destroyed. The fire threatened at one time to involve the entire block of buildings between Exeter Street and Tavistock Street. MESSRS. WATKINS & SIMPSON have located their offices and warehouses *pro tem.* at Mercer Avenue, Neal Street, Long Acre.

HORTICULTURAL COLLEGE, SWANLEY.—The first of a series of four lectures on some popular florist's flowers, was delivered before a large body of students of both sexes in the Lecture Hall of the College on Monday afternoon last. The lecture briefly touched on the Anemone, Anterrium, Calceolaria, Cineraria, &c., reserving the Auricula, Dahlia, and Florist's Tulip for more extended notice. These subjects were illustrated by flowers and coloured diagrams, and a great deal of interest was manifested by the students. A second lecture will be delivered on Monday next.

HORTICULTURAL CLUB.—The next meeting, to be held on Tuesday next at the Hotel Windsor, will derive additional significance from the circumstance that the Rev. H. H. D'OMBRAIN, the founder, and for

so many years the diligent and sympathetic Secretary, attains his 80th birthday. It is hoped that a large gathering will take place, to express the kindly feeling and gratitude which all the members must feel towards this much-respected member of the horticultural body. Arrangements are being made to celebrate the occasion.

PUBLICATIONS RECEIVED.—*Pharmaceutical Journal*, April 23.—*The Culture of Vegetables for Prizes, Pleasure, and Profit*, E. Kemp Toogood, Southampton. — *The [Tokyo] Botanical Magazine*, February 20, contains "Notes on some Liu-Kiu Plants," by Professor J. Matsumura; "List of Plants collected in Mount Togakushi and its vicinities," T. Inui, H. Hatton, and S. Kusano; "Plantæ Japonenses novæ vel minus cognitæ," T. Mak'no, and various articles in Japanese, one of which treats of "Plants employed in Medicine in the Japanese Pharmacopæia."—*Canadian Horticulturist* (Toronto, Ontario), April. This includes articles on, "The Pæony," "Outdoor Flowers in February in British Columbia," "Trees and Shrubs in Niagara Falls Park," "Iroquois Horticultural Society" (with portraits), "Preparing new Strawberry Beds," &c.—*Cape of Good Hope Report of the Government Botanist and Curator for 1897*; a satisfactory record of progress.—*Agricultural Gazette of New South Wales*, vol. ix., part 2, includes papers on "The Making and Improvement of Wheats for Australian conditions," "Fruits at the Richmond River Experiment Farm," and various articles relating to stock-farming.—*The Tropical Agriculturist* (Colombo), April. This number treats of "Pioneers of the Planting Enterprise in Ceylon (C. T. and Frederick J. Haddon), "Coffee in Brazil," "Indian Tea Crop," "Coffee Planting in Ceylon," "Rubber Cultivation," "Coffee in Hawaii," and many similar subjects.—*Indian Gardening* (Calcutta), a weekly journal "devoted to gardening, agriculture, and the allied sciences."—*Investigations on the Native Vegetation of Alkali Lands*, by J. Burt Davy.—From the Agricultural Experiment Station, University of California:—*Investigations in the Bark of Trees*, Prof. Th. Meehan, being Bulletin No. 29 of the Department of Agriculture, Pennsylvania. Not the least interesting portion of this paper are the clear illustrations scattered through the text. *The Plants of Lewis and Clark's Expedition across the Continent, 1804-6*, Th. Meehan, reprinted from the Proceedings of the Academy of Natural Sciences of Philadelphia.—*The Florists' Review*, Chicago and New York.

GARDEN GOSSIP.

ROYAL HORTICULTURAL SOCIETY'S GARDENS.—This is a year of fruit-blossom. In every garden and orchard we have visited, hardy fruit-blossom is uncommonly abundant. Never does a fruit-garden look prettier, or more full of possibilities than now, with its Apple, Pear, Cherry, and Plum-trees wreathed in white or pink. Yet, whilst admiring the display, we talk of possible contingencies, and hope that nothing will happen that shall cause us to say in September, that 1898 is a year of fruit-blossom only. At present there is nothing to make the fruit grower take a despondent view of the future, but how full are the next few weeks of anxiety nevertheless.

At Chiswick, the superintendent, Mr. S. T. Wright, is busy with the miscellaneous work inseparable from spring, and the Gardens at the commencement of the season offer unmistakable proof that they are well managed. Indoors and out, cleanliness and neatness are apparent, and every particle of space is now, or will soon be, planted with a crop. The trials of Violas, Annuals, Strawberries, Peas, Onions, and Tomatos, have been arranged for, and the sowing and planting completed.

With regard to the annuals, it may appear to some (ourselves included), that their importance is hardly sufficient to justify a trial of varieties in such an experimental garden as we would regard Chiswick. The majority of the trials, nevertheless, are most useful, and the results in the case of Strawberries, Peas, Potatos, &c., form a guide to the committees in granting awards to novelties. Some of the fruit-

quarters have been made much better and more convenient by replanting during the last few years, and the collections afford a visitor the opportunity to observe the characteristics of all the most valuable varieties.

Peaches and Apricots upon the walls will not be abundant; the Peaches especially are sure to be thin, the blooms having fallen. Plums, as standard or bush trees, have lost a considerable proportion of the bloom, but sufficient remains at present to produce a good crop. Indoors the Vines look well, and have broken strongly, there being every indication of a full crop of Grapes. Peaches are not so good; the flowers were open during a fog, and many have failed. The house of pot-Figs looks well. The trees were shaken out and repotted in the winter, and have consequently carried a thin first crop, but the summer crop will be an abundant one. The shaking-out of the variety Pingo de Mel did not cause the tree to cast a fruit; and it may be recommended as one of the very best new Figs for forcing. In one of the plant-houses there are numerous varieties of zonal Pelargoniums, for there is to be a trial of these also. Several of the propagation-pits have been re-roofed and otherways overhauled by the garden staff, and these necessary repairs have effected much improvement in the general appearance of the structures. The well-known Camellia-bushes in the open border have still a few blooms upon them. Altogether, the gardens are well managed, and much credit is due to Mr. Wright and his staff. *P.*

—The superintendent, Mr. S. T. Wright, seems to have arranged for some useful work to be performed by the Floral and Fruit Committee during the ensuing season. A remarkable trial of comparatively hardy annuals sown in beds, each some 6 feet square, on a long border, can hardly fail to be at once interesting and attractive. The border is several hundred feet in length. On the opposite side of the footpath fronting this border is one of narrower breadth, and this is filled from end to end, and is carried on into a supplementary border with Violas, of which there are about 300 half-dozens, though, of course, some are of the same varieties, but from diverse sources. This will constitute the most complete and interesting trial of these popular hardy flowers yet held at Chiswick, or, indeed, almost anywhere. Zonal Pelargoniums in pots, and planted out; Cannas, hardy Phloxes, Pæonies, and other things, bid fair to furnish abundant work for the florists. In the vegetable department there is a trial of some sixty varieties of Potatos, some half hundred of which are reputedly new. Then there is a big trial of Peas, just a few of which are standard varieties, but the remainder also are classed as new. Onions, again, of which there were seventy-six stocks sown, will attract great attention. In all cases those sown in the autumn will enable a fair trial to be made of fitness for that purpose, in spite of the mischief wrought amongst all the varieties by the winter fogs. There is also a trial of Lettuces, and in a long pit one of early Radishes, of which a large collection may be exhibited at the Drill Hall on the 10th inst. In fruit, Strawberries of old and young plants should furnish capital trials. Frost has not dealt tenderly with the abundant bloom on stone-fruits and Pears, but the luxuriant bloom on the Apple-trees should be productive of a grand crop of these excellent fruits. *A. D.*

GUNNERSBURY PARK.

We found Mr. Reynolds very busy thinning a few of his choicest bunches of Grapes. He had something grand to show us in the shape of a magnificent display of Vanda teres in flower. Many of our readers have probably seen the Gunnersbury Vandas in bloom; those who have not, have so far, missed a great treat. Seventy-two spikes of bloom had been removed before we saw them, but one would scarcely have known it, so fine was the display. There were still upwards of two hundred spikes, and some of them had seven blooms upon each. The plants are in long, rather deep, wooden-boxes, containing nothing but sphagnum-moss and crocks. Of course,

the greater number of roots are above the moss, and they, no doubt, absorb moisture, and probably gases from the atmosphere. It is worth remark, that in the house where this Vanda succeeds so well, there is a large bed of leaves and tan, in which the collection of *Ixoras* is plunged; and such a bed of partially-decayed leaves, which are constantly moist, must have a decided effect upon the air in the house. Water is afforded so soon as the flower-spikes are growing freely, and continued until at the end of the summer, the plants show signs of lessened growth, when they are induced to rest by reducing the supply. This is generally in September, but the time varies according to the season, whether it be an early or late one. As soon as growth is completed, it is desirable to get the plants thoroughly ripened, and here it is we suspect that many growers fail to obtain flowers. It should be remembered that so long as water is given in usual quantity, and there is sufficient heat, growth will proceed, even if slowly, and then there is insufficient autumn sun to ripen it. There were several other species of Orchids in flower, and a fine lot of decorative foliage plants in other houses. Gunnersbury Park has long been a noted place for fruit, and a walk through the vineries, Peach-houses, Figery and orchard-houses is very enjoyable. The Vines in various stages promise well, as do most of the Peach-trees, and in the Fig-houses were plenty of ripe Figs. A vast number of Strawberries are forced, and Mr. Reynolds still prefers *La Grosse Sucrée* for early forcing, say until the beginning of April. At this date he agrees that Royal Sovereign is the better one. There is a glorious show of bloom upon the Cherry-trees indoors, and upon Plums. At this garden and that in Mr. Hudson's charge at Gunnersbury House, one sees more attention given to *Pelargoniums*, scented-leaved and others, than is now common. Mr. Reynolds is training large specimens in various shapes of zonal varieties for positions on the Terrace and in Messrs. Rothschild's garden in Piccadilly. A fine new span-roofed house has lately been built for the cultivation of *Pelargoniums*. The hardy fruit blossom is abundant here, as elsewhere. P.

THE FRENCH ASPARAGUS INDUSTRY.

MR. EDWARD CONNER'S life-like description of this in general, and of Asparagus-culture at Argenteuil in particular, in a recent *Gardeners' Chronicle*, vividly recalls a visit to the same district under the guidance of a late president of the Board of Trade some twenty-five years ago. The system so graphically described by your correspondent was then in full force, and here seems to have been little change, unless in enlarging the area under culture, and feeding the crops with more and richer manures. It makes a Britisher's mouth water to read that the supply from the suburbs of Paris, of which Argenteuil is the centre, is some 10,000 tons in the season, and that the total consumption of Paris amounts to 13,000 tons a year, or about thirteen pounds per head of the population. And yet no one who has lived in any of the main streets near the Halles Centrales through the Asparagus season, and seen the piles of Asparagus come and go, and almost wholly load up the coster's barrows from the middle of April to the middle of June, will think the estimate of consumption exaggerated. Within the last half century the Asparagus trade of Argenteuil has risen from an annual value of 30,000 francs to one of 2,000,000 francs, which is still increasing in various directions by leaps and bounds. Just as Endive, Chicory, Lettuces, are the national salad, so Asparagus and Mushrooms are the national vegetables. They are eaten hot and eaten cold, with oil, vinegar, cream, butter; and everybody, the poor as well as the rich, seem to eat them.

The fact being, there is a fashion in the use of vegetables as in the shape of dresses and of hats. In France it runs on Asparagus; here, and now, it is red-hot haste after Tomato, &c. And there is no denying that this fashion and hunger for Asparagus in France has done very much indeed to lay the foundation of the Asparagus industry on its present

basis, so broad and wide, as well as force it into broader areas in the future.

Political economists never weary of telling us that it is a risky proceeding to allow supplies to outrun demands to any great extent. As the surplus, if any, of Asparagus could be tinned, the risk in this case of loss would be very slight.

Were a combined and vigorous effort made by growers to float good home-grown Asparagus, at reasonable prices, on our market, the probabilities are that it would be even more successful. De what we will with the Tomato, it is still a tender plant; while the Asparagus is a perfectly hardy perennial, a native of Britain, and found wild in Russia, and in various countries of Europe and Asia. In fact, the wider our experience in the examination or culture of garden Asparagus the more certain it seems that there is but one variety. Country, site, soil, culture, situation, injurious feeding are chiefly responsible for the numerous names, as Dutch, French, Argenteuil, American, English, Scotch, Grayson's Giant, Cennover's Colossal, Palmetto, Thetway's New Emperor, Batterssa, Deptford, Reading, Mortlake, Ely, Colchester. All the so-called varieties of the common Asparagus are also alike hardy in our climate. Young shoots prematurely early are often cut down by frost. But the crowns and roots, unless coddled with tenderness by excessive coverings of earth or manure, are perfectly hardy. It is very important to bear this in mind, on the score of what will probably prove a great expansion of Asparagus culture in Britain.

I was much struck with the suberdicate place given by Mr. Scarlet, of Musselborough, to home-grown Asparagus in his able lecture recently before the Scottish Horticultural Association on the supply of the Edinburgh and Glasgow markets with fresh vegetables; home-grown Asparagus was hardly in it. This need not have been so. The most catholic cosmopolitanism hardly expects us to refrain from developing our own resources to oblige or enrich the French or other foreign growers of Asparagus. Our climate is equal to theirs, if not superior, for the purpose; and we have wood-ashes, night-soil, salt, sewage, pigeon, fowl, and other manures *ad libitum*, with the command of the markets of the world for Peruvian and other guanos, and all the best artificial manures.

Labour is cheaper, and hence more plentiful in France and on the Continent generally; growers are also more generally the owners of the ground they cultivate, and think no labour or effort too great to command the finest "grass." Through their careful grading into three sizes, the French growers get more for the best than we Britishers would get for the whole bulk sold in a rough mixed lot; indeed, Mr. Conner says the bundles range from 11½ francs to 7 francs each.

The skill of the French and other foreign growers may be said to be hereditary. The industry has been handed down from father to son, and each grower is an expert as well as an enthusiast. The mustering at 4 A.M., the cutting of the grass before the dew is dried off it by the morning sun, the night journey to Paris, the early sales in the Halles Centrales, the careful and laborious manifestation with which they cut or twist off the edible stalks, excite our admiration, and merit our praise.

It is, however, extremely doubtful whether it would prove either prudent or profitable to copy the Argenteuil culture too closely in this country. In so far as the means employed to secure such a rich, friable, mellow soil, as one finds in this suburb of Paris, it must foster the culture of the "grass" to the uttermost. But where it comes to earthing-up of the crowns from 8 inches to a foot deep to blanch the stems, one is compelled to ask—Where's the benefit? Nothing impressed me more at Argenteuil than the laborious nature of the uncovering or re-covering by a bad or a small fork of the crowns at each cutting. Your correspondent seems to have been quite fascinated and converted at sight on the spot. I was not. Mr. Conner says the earthing up is to force the stems to become blanched, and arrive just at the surface white and tender. And then he adds—"If allowed to come through the earth, the

ends will become green, and be harder, and less delicate." The first part of both these sentences is a mere truism; and the second portion of both cannot be said to have been proven. Assuredly, whiteness and tenderness do not run in couples in the larger portion of French Asparagus; and they seldom give any but mere wiry sprays, the chance of proving whether or not if good fat "grass" becomes green it shall become the harder or less delicate in consequence of its greenness is not given. On the other hand, the whole of British experience proves the contrary. Blanching mostly renders vegetable tissue more crisp and sweet, viz., Celery. But the same process renders Asparagus shoots hard and tough—hence, their only edible morsel is the mere tip, and the remaining 6 or 7 inches of blanched stems is hard and harsh. Only the supremacy of fashion at our tables could have tolerated such wilful waste at such great cost for so many years. By ignoring the earthing-up and the blanching, the British will greatly reduce the cost, and place green-grass on the market from 6 or more inches long, crisp, sweet, tender, all the way from base to crown of equal size and superior quality to the best foreign grass. Argenteuil is a good object-lesson book even for the best home-growers, of whom we have many among us, but let us steer clear of the waste of mounting an edible morsel on a stout blanched stick some 8 inches long, and almost as thick as a lady's wrist, instead of allowing the latter to grow into a tender crisp green stems from 4 to 8 inches long, furnishing half of a good dinner for a hungry man. D. T. F.

ALPINE GARDEN.

NEW AND RARE PLANTS FOR ROCKERIES.

(Continued from p. 170.)

Erodium chrysanthum, L'Hérit, is one of the rarest and most interesting of rock plants from the East, as its flowers are a very good yellow colour. The plant is similar to a dwarf *E. olympicum*, with a thick rhizome, and forming large tufts of greyish foliage; the flowers are large yellow, and cover the plant from August to October, as says Mr. Boissier, who imported the plant into his garden from Valleyres more than fifty years ago. It grows in the crevices of rocks in the alpine regions of Greece, on Taygetos and Parnassus. The cultivation of it is not difficult; put it in a crevice of the rocks in a very sunny and dry place, as the root easily rots, and let it alone. Mr. Leichtlin, in his beautiful garden at Baden-Baden, cultivates it very easily.

Eryngium glaciale, Boiss., found by the writer between the sterile rocks forming the summit of the Sierra Nevada, Spain, between 8000 and 10,000 feet, is a dwarf plant not exceeding 10 centimetres in height, and which may be considered as the South Spanish form of *Eryngium Bourgati*. The bracts are spinose, and of a light blue colour in the time of flowering. This plant is rare in rock gardens, and must be cultivated in a sunny and dry place. It seeds freely, and is easy to propagate by sowing.

Erysimum thyrsoideum, Boiss., from the alpine regions of the Taurus and other mountains in Armenia and the East, is a very distinct plant with silky and silvery foliage, and Wallflower-like blossoms. It likes sunshine, and the crevices of rocks.

Falcaria scioides, Ascherson, is a pretty eastern Umbellifer, with serrate and ornamental leaves and small heads or umbels of white flowers. It succeeds anywhere in a good soil, and is seldom seen in gardens.

Ferula Asafetida, L., and *Ferula Nardus*, Boiss., are two officinal and much valued plants, growing between the stenes and rocky places of the mountains in the East (Turkestan, Afghanistan, Baltistan, &c.). They have large thick stems, little whitish flowers in umbels, and deeply cut leaves. They are rare in gardens, although of easy cultivation and good habit. They must be, as we have proved here, kept very dry throughout the winter and resting season, like other plants from Turkestan.

Galium tyrolense, Willd., is a dwarf form of the *G. erectum*, Huds., creeping over the rocks, and very good for partly shady positions.

Gentia horrida, D.C., is an irregular little shrub, forming dense ash-coloured tufts, never higher than 25 centimètres, which are, in July, covered with light yellow flowers in small capitules. The plant is rare, and one of the best of all the rock-shrubs; it grows only on a little hill in the west of France, and in the eastern Pyrenees. But it is, *à proprement parler*, a Spanish plant. It grows well between the rocks in a sunny place, and needs a deep soil as the roots are very long. We increase it by cuttings made in August under a cold frame or a bell-glass, and in sand. Among Gentians we find many beautiful kinds which are seldom seen in rock-gardens. *Gentiana angustifolia*, Villars (non Michx.), is by far the best of the acaulis group. Its stoloniferous stem, its very bright green and shining narrow leaves very lightly veined, and its large deep-blue flowers, well marked at the throat with five green spots, are very distinct. The plant likes a chalk soil, and is the best of the limestone-loving Gentians. It is of easy cultivation, and needs only sunshine and a good rich soil. It grows in the limestone-Alps of Savoie.

Gentiana Fievreri is a good hybrid between *G. verna* and *bavarica*, which is common in the neighbourhood of the Dent de Morde in the Alps of Canton de Vaud. The leaf is thick, and in form is just between the round leaf of *bavarica* and the acute one of *verna*; the flowers are of a very fine blue tint, and resemble those of *bavarica*. This species is not yet in general cultivation, but will be, I think, very popular when known.

Gentiana pyrenaica, L., is a dwarf and pretty plant, growing between the rocks in the pasturages of the Pyrenees. It forms small tufts of narrow and shiny leaves, from which rises the stems, not higher than 5 centimètres, bearing sky-blue flowers, resembling those of *G. verna* but smaller. It likes a small and well-drained niche in the rockery, and full sunshine.

G. Rostani, Renter, is identified in the *Index Kewensis*, with *G. bavarica*, but is quite a different plant, and easily to be distinguished from it. Its leaves are much larger, of a dark-green colour (light and shiny in *bavarica*), not shiny and acute; the stems are long, often 20 centimètres (never higher than 10 c. in *bavarica*), and the calyx long and slender; the flower is like that of *verna*, but the tube of the corolla is larger, and the deep blue of the petals is also characteristic. The plant grows in the turfey alpine pasturage of the Valdese valleys in Piedmont, and on Mont Viso. It is a very nice plant for the rockery, where it must be planted in a moderately sunny place, and in turfey, well-drained ground.

Geranium Traversii, Hook., from the mountains of New Zealand, where it grows in the grass and between the rocks of the alpine region, is a very useful plant for the rockery. The leaves are silvery white, just as are those of *G. argenteum*, but much larger; flowers large, well-opened, of a light purple colour, streaked with carmine. It forms a big bush, and flowers throughout the whole summer. M. Cockayne, who sent me the seeds from New Zealand, tells me it is one of the most conspicuous flowers of the country. It is a hardy plant, but in the north it would be wise to cover it in the winter.

G. sessiliflorum, from the same districts, has handsome foliage but small flowers, forming in the centre of the tuft, which is very dwarf, a little cushion of white blooms.

Geum speciosum, Alboff (in *Bulletin de l'Herbier Boissier*, 1893, p. 244), a very singular and characteristic plant with large leaves, of the form of those of *G. montanum*, but larger; flowers large, very showy, of a bright, yellow-orange colour, rather resembling in some specimens those of *G. coccineum*. It is a good plant for rockeries and gardens; it grows freely in any light and good soil, and likes sunshine.

Globularia cordifolia alba.—The type is often cultivated in gardens, and is considered as one of the best

of rock plants; the white-flowered form is a beautiful one, and effective on rockeries.

Heracleum Mantegaffianum, Levier and Gommier (in *Nuovo Giornale Botanico Italiano*, vol. ii., No. 2, Avrol, 1895, p. 79), is the largest *Heracleum* known. The writers found it on August 16, 1892, near the River Kliutsch, in Abchasia, where it was growing with *Tommasinia* and other large plants. The size of the Giant Parsnip impressed the two botanists, and, as the plant was out of flower, they took seeds of it and brought them to me. Two years after we could have sent them leaves and flowers of the most gigantic perennial we ever had in our garden, as the stem was 2½ mètres high, and the diameter of the tuft was 4 mètres. The umbel of flowers was 1½ mètre in diameter, and Messrs. Levier and Gommier counted 10,000 flowers on it. These flowers are yellowish, and like those of all other *Heracleums*, but the strong aromatic odour of the plant is characteristic. *Heracleum Mantegaffianum* is easily cultivated, and grows large in proportion as the soil is deep and good. It is a very ornamental plant, and useful for shrubberies, wild gardens, and alpine gardens.

Iberis Bernandiana, Gren. et Godr., from the highest parts of the Pyrenees, where it grows between the rocks. It is a dwarf plant, forming dense tufts of deep green foliage, quite covered in June and July with fragrant lilac coloured flowers. In the rock-garden it requires sunshine, and a deep, well-drained soil.

Iberis Gartonii, Delacroix, from the lower regions of the Pyrenees, is a dwarf form of *Iberis semper-virens*.

Lepidium flexicaule, Kirk, from the mountains of New Zealand, is a small dwarf plant, which rapidly covers the rocks between which it is planted, and has very ornamental foliage.

Linaria equitrolaba, Spreng., and *L. hepaticifolia*, Stand., are two dwarf and creeping varieties of Toad-flax, which grow between the rocks and walls of Corsica and Sardinia, and are nearly allied. They may be considered as Liliputian forms of the Ivy-leaved Toadflax, and they are so spreading that when once established on a wall they rapidly cover it. They are not taller than the well-known *Arenaria balearica*, and are covered with purple flowers from May till December. They require sunshine, and a warm situation. *H. Correvon*, *Alpine Garden, Geneva*.

SEEDLING NARCISSI.

THE following is an abstract of an address given by the Rev. G. H. Engleheart, at the meeting of the Horticultural Club on April 12 last.

Disclaiming any intention of touching upon the more general subjects of the geographical distribution, the horticultural history, or the cultivation of the Narcissus, Mr. Engleheart prefaced his remarks by the reflection that gardeners who may be said to be in "deadly earnest" may be roughly divided into three classes—the collecting or acquisitive gardener, whose main object is to own more and better plants than anyone else—not, perhaps, the worthiest type, yet not without much usefulness, especially to those who have plants to sell. Secondly, there is the grower—the man who would fain bloom some plant which no one has bloomed hitherto; who would conquer *Nepenthes Rajah*, or some intractable alpine. Thirdly, there is the raiser—the man who concentrates his gardening energies upon the improving of some plant by hybridisation and seed-selection. And of all gardening work, undoubtedly this is the most fascinating. To this work belongs the sense of a certain creative power, and the peculiar satisfaction which comes with the attainment of a definite end proposed, especially when it is reached, as in this particular case of the Narcissus, after years of waiting. The raiser will never again care for mere acquisition or cultivation.

The raising in England of Narcissi from seed has its points of distinct interest. For the amateur worker there is the consideration that the Narcissus is *par excellence* the amateur's flower. With scarcely half-a-dozen noteworthy exceptions the whole of our

host of garden Narcissi have been raised by amateurs. And it is a peculiarly English flower. Englishmen have made it what it is: it is the English *Amaryllis*, suited to our climate, and occupying our markets and our private gardens at a season when the appetite for flowers is keen and unglutted by the satiety of summer. But the main reason why there is satisfying and endless interest in the raising of this flower is this, that the possibilities of simultaneous variation in both clearly discerned form and in colour are greater in it than in any other of our favourite flowers. In the Rose and the Begonia, for instance, though of course the variation of seedlings is infinite in form and in colour, yet in form the variation is not that of one simple outline, as in the Narcissus. Orchids fall into a different category, being plants neither for the open garden nor for everybody, and though their modification of form and colour is limitless, yet it lies in smaller and far more complicated detail.

To put the matter in another way, the Narcissus is perhaps a unique example among flowers of the extraordinary diversity that may be effected by a few simple elements. In form, the structural elements of the Narcissus may be reckoned as two only. The tube and corona conjointly form one cone, lying horizontally with its apex at the ovary, and the form of the whole flower depends principally upon the position upon this cone of the sepaline whorl or perianth. Thus, in *N. cyclamineus* the perianth is retired almost to the ovary, this flower being almost tubeless; while in *N. poeticus* and *jonquilla* the perianth is advanced right up to the very rim of the corona. Between these two extreme forms innumerable others are produced by the simple movement backwards and forwards of the perianth. Further variety is supplied by the dilation or contraction of the mouth of the corona, by the changing width of the perianth divisions, and by their angle with regard to the longer axis of the cone.

The colour elements are only white, yellow, and red, the last restricted to the corona and in amount. But of these we have many whites—clear-white in the poeticus, whites of green or creamy tone, and pink-whites in the cup of some of the Leedsii section. In yellows there is a very extensive range, and yellow is a large and most satisfying colour. The reds are beautiful, lying between orange and almost pure vermilion.

It is also noteworthy that of the species available for cross-breeding, two only have practically been answerable for all our garden forms. The *Tazetta* the *jonquil*, *triandrus*, *Corbularia* and others, have yielded hybrids, but all the "Daffodils" of general value and popularity in garden and market are either trumpets or poeticus, or the intermediate progeny of these two. And every link in the endless chain which they forge is a separate study in clear-cut outline and simple but subtly-graduated colour.

The story of the red colouring in Narcissi is interesting. It all originates from the narrow edge or thread of purple, or almost brown, which rings the eye of *N. poeticus*. This is a concentrated pigment of great potency, but not readily released or diluted into a "wash" of colour. Nature has, however, effected this in *N. p. poetarum* and similar flowers which occur sparingly in the high Pyrenees and elsewhere where *N. poeticus* abounds. In these the colour is no longer confined to the extreme rim of the corona, but suffused more or less throughout it. Such flowers transmit their character of suffusion to their hybrids, hence the race of red-cupped *N. incomparabilis*, whose varieties intercrossed or re-crossed with the poeticus yield flowers of intensified or accumulated colour.

Crosses between these red-crowned flowers and the white Daffodils, *N. cernuus*, *albicans*, *Leedsii*, &c., produce the tints known as citron, salmon, apricot, and peach—a very refined and exquisite range of colour. A curious fact in this connection is that the creamy-white *N. triandrus*, though it sets seeds freely by or upon such red Narcissi, nevertheless invariably eliminates the colour, the resulting seedlings never showing even a trace of red. And it a white trumpet is crossed with a poeticus having the crown not

suffused but only edged with colour, the progeny is often a flower of quite self-white in cup and perianth.

A very large amount of material and time would be necessary to enable a worker to confidently formulate a rule about the transmission of characters by the seed and pollen parents respectively. The attribute of prevailing colour is, perhaps, derived from the male principally in the *Narcissi*; that of form seems fairly well divided between the two parents. Occasionally, however, the male entirely effaces the female; thus in seedling beds from *Ajax* by pollen of poeticus, there will sometimes be found plants of quite pure poeticus, while no instance of the converse has been detected. The white perianth of

growers know that almost every variety, even the large trumpets, such as *Emperor* and *Empress*, occasionally bear two flowered scapes. But crosses between single-flowered *Narcissi*, e.g., *Ajax* and poeticus, not very uncommonly yield permanently two flowered forms. Such flowers as *Emperor* and *Empress* might well be considered of distinct character and separate descent. But among the seedlings from self-fertilised *Emperor* there will sometimes appear flowers almost the facsimile of *Empress*, and *vice versa*. This was a great puzzle until a son of Mr. Backhouse, the raiser of both, told Mr. Egleheart that his father raised both from one seed-pod. Forms which have been fused together to

raiser of *Narcissi* is that of time. He is commonly asked the question, "How long does it take to flower a seedling?" and the answer is, "Four years at the least, usually five, sometimes six." But experience shows more and more that to this reckoning even as many as three or four more years must be added for the presentment of the flower and the whole plant in its matured and perfect condition. A seedling may have been increased to a row of a dozen or more bulbs before this final development takes place, and it often comes quite suddenly. The moral, of course, is, that no seedling possessing any one good character of size, form, or colour should be hastily rejected, since its deficiencies will often be made good in time. Flimsiness and narrowness of the perianth-divisions is a usual character of incipient seedling flowers.

The *Narcissus* has by no means neared its limits of development. The whole of the varieties a present in extensive cultivation are the seedlings of the first two men who touched the subject, and it has been made abundantly apparent that they did not reach the goal in size, in form, or in colour. The market still calls out for bold flowers of purer white, and for more vivid reds, and it is strange that *N. poeticus*—surely the most beautiful part of the whole genus—is represented in common cultivation by about four varieties, which are simply wild plants as collected, untouched by man's skill.

SHOW AURICULA ABBÉ LISTZ.

WE have in this new variety of Mr. J. Douglas' raising a plant of robust constitution (fig. 108), throwing a large truss of fine green-edged flowers. It belongs to a class of which there are few superlatively good varieties, and to which the Abbé is an admirable addition. The variety was well shown by an amateur, Mr. Sargent, of Cobham, it being the premier Show Auricula at the National Auricula and Primula Show at the Drill Hall, April 23 (see our report of the same in the issue for April 30, p. 271). Our artist has slightly idealised the flower as then shown.

HOME CORRESPONDENCE.

THE LOST ONION TRADE.—I am obliged to your correspondent, "A. D.," for his interesting notes on p. 237, and have no doubt that the small culture and combination therein mentioned have done much to account for the unusual development of the export Onion trade of Brittany. I am told that our Bedfordshire growers have, to a large extent, given up the cultivation of Onions, but whether this is in any way due to the competition of the French producer or to other causes, I am unable to say. That very heavy crops may be grown with good cultivation is amply proved from the figures given by "A. D.," at p. 237. Undoubtedly the purchase of manure at a cheap rate should very much influence the growth of the bulb. Where this can be bought cheaply, as is the case with London stable-dung, and this can be conveyed by canal or railway, and put on the land direct at a cost of less than 5s. per ton, districts having a good natural soil, and served by the one or the other means of conveyance, offer favourable opportunities for profitable Onion culture. Onion growing, if combined with Strawberries, and the plants treated as annuals, as suggested by "A. D.," should prove highly profitable. The communication from a correspondent on p. 244 opens up altogether another aspect of this interesting question. Free trade is acknowledged to be for the general benefit of the masses in this country; at the same time it seems only fair that we should threaten to put a duty on Onions, as your correspondent says, "to be kept on until the Grape-duty be taken off." May I suggest that a "Roland for an Oliver" should write to his representative M.P., and place the two sides of the question before him, and let your readers know the reply. *C. Herrin, Droghere.*

—It is probably in error that so much is made of the French share in our annual importations of this vegetable. The various arguments based thereon, do not therefore really apply. I have only the figures before me of importations in 1895, totalling about 5,700,000 bushels, the French share being only 576,000; whereas Holland contributed 1,400,000; Germany, 361,000; Belgium,



FIG. 108.—MR. J. DOUGLAS' NEW GREEN-EDGED AURICULA ABBÉ LISTZ.

poeticus is a very persistent character; if a yellow self-coloured trumpet is crossed with poeticus, quite four out of five of the resulting seedlings (*N. incomparabilis*) have white perianths, no matter which way the cross be made, though the colouring of the corona may be intermediate or follow the pollen parent. The offspring of a robust and a weakly parent may be stronger even than the stronger parent. Thus the white trumpets are notoriously difficult to make thrive in most English gardens, but crossed with poeticus they give rise to the race of *N. Ledesii*, many of the varieties of which are plants of more robust habit even than the poeticus.

Instances of reversion are common in seedling *Narcissi*, and present points of interest. There are reasons for supposing that the oldest type of *Narcissus* was rush-leaved and bunch-flowered. All large

form an ancestor appear separately, and in a curiously interchangeable form, in its descendants. Some wild *Narcissi*, from uniformity of environment through a long period of time, have become perfectly stable, and in their natural habitat reproduce themselves precisely from seed. Our own wild Lent Lily is an instance in point, and the splendid *N. maximus* seems not to vary at all where it grows wild; but this stability is at once upset by a new environment, and the changed conditions of cultivation. Brought to an English garden, *N. maximus*, fertilised with its own pollen, gives seedlings greatly divergent in character from the type and from one another. Therefore, it is rarely or never possible to secure the fine form and colour of this flower in hybrid derivatives.

A consideration which presses heavily upon the

326,000; Portugal, 343,000; Spain, 1,577,000; Egypt, 1,089,000; British Colonies, 42,000; Sundries, 16,000; total bushels, 5,730,000. I have placed Holland and Germany in juxtaposition, as there is probably a doubtful factor in all Board of Trade returns concerning Germany. It is just possible that because the Rhenish part of Germany can only advantageously export to England v. a Rotterdam, with a small portion via Belgium, the Dutch and Belgian totals are swelled by a preponderance of German products. The so-called German total might only comprise direct importations from German, North Sea, and Baltic ports. The total importations of Onions into this Kingdom were 5,735,000 bushels in 1896, and 6,108,000 bushels in 1897. I have at this moment not the shares from each contributory country, and hardly think the proportions would be seriously affected. *H. H. R., Forest Hill.*

SPORTIVE CYCLAMEN.—I have had sent me as curiosities Cyclamen blooms, one white and one rosy-red, both declared by the sender to have been produced from the same corm, which I am informed carries twenty white ones and ten red ones, open at once. Is this a rarity, or do Cyclamens sport in this way? Of course, there is the possibility that two tiny plants may have been pricked up together originally and grown on, the corms fitting each other so closely that an ordinary observer would not detect the division. But as favouring the stated sportiveness, is the fact that the flowers resemble each other absolutely in size, form of petal, length and colour of stalks, &c., whereas were they from diverse corms some undoubted distinctiveness other than colour might be looked for. The matter is interesting, and I should like to learn from extensive growers of Cyclamen whether such sporting is common or otherwise. *A. D.*

PROTECTING PEACH-TREES WHEN IN FLOWER. ETC.—Being in Perth lately, I called at Oak Bank. The clever gardener there (Mr. Laurance) pointed out to me a fine Peach-tree growing against a stone wall facing due south. It was one mass of bloom, and had never failed to produce a good crop of fruit. He attributed his success to never covering the tree when in flower, which corroborates my own experience in different counties. When the Duke of Norfolk sold his estate at Worksop Manor, John Stevenson, who trained the wall-trees there, was transferred to Arundel Castle. When I went there as a young man to be foreman, John Stevenson had been there about four years. When he went there the trees were in a miserable condition, for which the climate had been blamed, but four years afterwards they were without exception the finest-trained trees in England. John Stevenson said, when at the Worksop Manor, they were at great trouble in protecting their Peach-trees when in flower, but there happened to be one tree where the covering did not reach, and that tree never failed to produce a good crop. In future no more covering was adopted there or at Arundel. John Stevenson said if gardeners would only leave one tree uncovered to see the result, they would at once abandon the practice of covering either with nets or glass cases, which makes the bloom tender and keeps the bees from them. John Stevenson always adopted the plan when the Peaches were gathered, to go over all the trees and cut off half the leaves, the remaining half being sufficient to mature the bud. This allowed the sun to ripen the wood, which got so brown and hard, and the leaves remained longer on the trees. The old barbarous system was to take a birch-broom and wipe them off. When the late Mr. Ingram finished the new gardens at Frogmore, the Earl of Surrey, who was then Master of the Household, invited Mr. Ingram to visit Arundel and see the wall-trees. He at once wanted a man from Arundel to train his young trees and manage all the out-door fruit. He engaged John Powell, who succeeded me as foreman, where he spent his lifetime. I never covered my wall-trees at Sandringham. Worksop Manor was also famous for pyramidal Pear trees; merely drive three Oak posts into the ground 8 inches above the soil, and place an iron hoop, 3 feet in diameter, on the top, secured by a staple. Select standard trees, 6 or 8 feet in height. Tie the lower branches down to the hoop. Always take care of the principal leader, merely shorten it back every season to the length required to furnish the tree. When the trees are about 18 feet in height cut out the leader. When I finished the new gardens at Sandringham, I planted rows of them across the gardens about 80 feet apart; they were much admired. They were planted 8 feet apart in the rows. I may add that when at Oak Bank

I observed one of the finest Wellingtonias which I have ever seen. The height was 75 feet, and the girth 15 feet in circumference 4 feet from the ground. It grows in a sheltered corner on the turf, behind the garden-wall. Mr. Laurance told me that the roots had got under the foundation of the wall and extending down the garden. *William Carmichael, 14, Pitt Street, Edinburgh.*

GRAFTING WITH A STRIP OF BARK CARRIED OVER THE END OF STOCK.—The mode of grafting practised by fruit-growers in Botes Fleming parish, near Saltash, has not been illustrated in your valuable paper, nor does Mr. Wright mention it in his fruit-grower's guide. [This mode of grafting was illustrated in the *Gardeners' Chronicle*, March 27, 1897. *Ed.*] I have used it for fifteen years for all except large stocks, that are better rind grafted where two to four scions are required to carry the sap. It most nearly resembles saddle grafting, and is called slip-and-tongue. I enclose two photos; No. 1 shows two unequal heads of a grafted tree. The tongue of that on the left failed to grow, and the bark does not cover the wound. The tongue of that on the right grew, and though that part of the stock is more than twice the size of the other, the union is complete—grafted March, 1896. No. 2, a budded tree of New Hawthornden, was grafted at the same time, and bore three fruits in 1897 of Northern Greening. The union where it was double-grafted, in 1896, is complete, but the wound where the stock was cut off in 1892 is still open. [The photographs sent by our correspondent clearly show these points. *Ed.*] Three maiden trees planted in November, 1892, all have open wounds. Does not this show that grafting is superior to budding? The slip should be two-thirds of the graft, the tongue one-third, and should only touch the stock with the bark, showing the wood of stock between the ends of the bark. If the tongue unites, the graft is pretty safe from wind-shaking, and requires no staying, and there is no snag to be cut off next year, as there is in whip grafting. Allen's Everlasting Apple I have not seen mentioned by your correspondents as a good late Apple, and of good flavour; we have a few dozen left. [See R. H. S. Report in last issue of the *Gardeners' Chronicle*.] It is a certain and abundant bearer, and has been kept till the middle of June. Sturmer Pippin and Claygate Pearmain Apples generally keep well on into May, and Uvedale St. Germain Pear. *H. R.*

LATHYRUS SIBTHORPII.—*L. Sibthorpii* (Baker) is a dwarf and elegant form of everlasting Pea, now, at the end of April, in full flower in my garden. Its botanical history is a little confused. It was given me by Mr. Archer Hind about twenty years ago. He had it I believe from the Botanical Garden at Oxford, where it had perhaps been cultivated ever since Sibthorp's time. Sibthorp does not seem to have distinguished it from *L. latifolius*, and the name, *L. Sibthorpii*, was first authorised by Mr. Baker, who described it a few years ago in the *Gardeners' Chronicle* from a specimen sent by Mr. Archer Hind. Since that time it has been identified with *L. undulatus* (Boissier), *Flora Orientalis*, vol. ii., p. 611, and this name, given to it on account of the wavy outline of the pinne, is now accepted as its true botanical name. E. Boissier says it is found wild near Constantinople, also in Bithynia. There is a very good portrait of it in Sweet's *British Flower Garden*, Series II., vol. iv., t. 333, as *L. rotundifolius* var. *ellipticus*. This was taken in 1838 from a specimen in the Birmingham Botanical Garden, and both figure and description correspond exactly with my living plants. *L. undulatus* is also figured and described in the *Botanical Magazine*, t. 9499. The plant is scarce in nurseries, even if it has ever reached them; I have seen both *L. rotundifolius* and *L. tuberosus* exhibited as *L. Sibthorpii*, but the true plant is now becoming less rare in gardens. Mr. Thompson, of Ipswich, having distributed many which he raised from seed. I have found it a little tender; at any rate, it prefers a warm spot against a south wall. It is well worth growing for its very early and abundant flowering, six weeks or more before any other form of everlasting Pea, and bright in colour, resembling *L. latifolius* in miniature. *C. Wolley Dod, Edge Hall.*

PEAR TRIOMPHE DE VIENNE.—I was glad to see a notice of this fine Pear in your paper. It was put into stock in 1880, and has proved a great addition to early autumn fruits. The growth is moderate, and it crops freely on the Quince as a pyramid or cordon, and grows very stoutly on the free stock. The fruit is the shape of the old Cuisse Madame (Windsor), but the skin is of a rich rough russet-brown, which gives it a handsome appearance. It grows to $\frac{3}{4}$ lb. in

weight or over if well thinned, and the flavour is very fine; but it will not keep, and if left on the tree too long it becomes mealy, but when fully developed it should be gathered and placed in the fruit-room for a few days, when it is juicy, refreshing, and carries a rich flavour. *G. B.*

M. TRUFFAUT'S ARTIFICIAL MANURE CARTRIDGES.—I have read with much interest your remarks on the above in your issue of this date (p. 264). I am pleased you are so favourably impressed with the system, and you may be glad to know I have been experimenting in a somewhat similar line for some considerable time past. My inventions have been guarded by provisional protection, and I am now securing a patent. The manures are absolutely free of all merely bulk-forming or weight-giving ingredients. They are the pure essence of plant-food. The cases are more congenial to the roots and nourishing to the plants than any metallic substance, but you and your readers will learn more later of their excellent properties and exceeding conveniences. *J. Muir, April 30.*

APPLE GLORIA MUNDI AND OTHERS.—Having known this sort for forty years, I am not able to speak in its favour. When grown as a standard, it produces a few perfect fruits, the others being one-sided, and very uneven on the Paradise stock. It gives excellent examples, but only a very few of them, while it is true it makes a grand dish of showy fruit for exhibition. I cannot recommend it for general culture, as so many are better in all respects—say, Tower of Glamis, the little-known Belle de Pontoise, Newton Wonder, and Alfriston. On the Continent it is generally called Belle Dubois, and has also found its way here under several other names. King of Tomkins Co. is yet grand in our fruit-room. *Geo. Bunyard.*

TOMATO CONQUEROR.—Whilst some persons seem to be perpetually experimenting with manures of diverse description in relation to Tomato production, and appear to leave matters after all very much where they found them, growers of experience go on in their own way, giving their own treatment and general culture, and somehow producing remarkable results. Just recently, when looking through the Cucumber and Tomato-houses, Mr. T. Mortimer employs with such admirable success at Farnham, I could but be struck with the appearance of 200 plants of the variety of Tomato named above—Conqueror—which is there grown for earliest cropping. The variety is of the corrugated order, though not severely so, for it is found that only this section is of any service for market-culture during the winter. Each plant was in an 11-inch pot, stood in rows of five on the soil-floor, all down one side of a long span-house, and some 2½ feet in height, having been stopped so soon as the required number of racemes of fruit had been set. It was thus possible to see a great portion of the entire crop at a glance; and, indeed, it was a remarkable one, the plants seemingly being all fruit. Colouring had just begun. It was expected that the whole would be fit to gather in three weeks, when out the plants would go to make room for others well advanced, to be this time planted out for vertical culture during the summer and autumn. The exceeding abundance of fruits on each plant, dwarf as it was, showed that this variety, Conqueror, is a capital setter. The seed from which this stock of plants was raised was sown about November 1 last. The soil compost is of an ordinary loam, with some well-decayed manure added, and a 48-potful of Thompson's Vine-manure per barrowful. When first put into the large pots, some 4 inches deep room is left for two top-dressings of soil, at which this manure is used in the same proportion. An occasional watering with soot-solution is also given. No treatment can give better results. *A. D.*

VERONICA ANDERSONI VARIEGATA.—We find the above named variety of Veronica an excellent one for flower-garden decoration during the summer, having used it for that purpose many years. In wet districts it is more useful than silver-leaved Pelargoniums, and requires much less care in propagation and storing through the winter. When associated with purple or blue-flowered Violas, Salvia patens, or Verbena Juncosa, it has a good effect. It is easily propagated by cuttings in the same manner and time, putting them in as with bedding Calceolarias, viz., about the first week in October; we make use of a cold pit constructed of old railway sleepers, and covered with glass sashes. The cutting bed is somewhat below the level of the surrounding ground, and

is made up of spent soil from the potting-shed with a thin layer of river sand on the surface. The cuttings consist of side-shoots of the old plants cut off at a joint, and leaving about three pairs of leaves. They are inserted in rows 3 inches apart, and about the same distance in the row. Fully 90 per cent. of them form roots. During frosty weather the eashes are covered with a mat, and over this some stable-litter. The outside of the pit is also banked round with coal-ashes. With these precautions, the cuttings are quite safe in the winter. One great advantage in using this *Veronica Andersoni* variegata in bedding is, that the plants can be put in their permanent places in April; and I have to-day, April 16, planted out some hundreds in the beds. I usually insert a few small branches of common Yew or Spruce in the bed as a slight protection against cold winds. Those of your readers who have much bedding out, and who are not over supplied with labour, will at once see the benefit of using half-hardy plants like this one in question. *H. J. C. Grimston, Tadcaster.*

LAW NOTES.

Re H. T. DARTNELL, STATIONER, FORMERLY NURSERYMAN, CHELTENHAM.

THE public examination of this debtor was held on Thursday last at the Cheltenham Bankruptcy Court, before the Registrar. The debtor, in reply to questions put by the Official Receiver, stated that he formerly carried on business as a nurseryman at Charlton Kings, and latterly he had carried on a stationer's business in High St., Cheltenham. He had filed a statement of affairs, showing liabilities amounting to £676 4s. 7d., and assets estimated to produce £237 5s. 1d. The Official Receiver, however, stated that the assets would not realise the amount estimated by the debtor, as the stock-in-trade, which he estimated to be worth £225, had been sold for £136. Debtor further stated that he was forty-seven years of age. He had no capital of his own when he purchased the nurseryman's business at Charlton Kings four years ago. He sold it about a year ago for £1000, and from the proceeds he repaid the £700 he borrowed when he started the business. With the remaining £300 he purchased the stationer's business in High Street, of the Official Receiver, the previous owner having become bankrupt. The reason he gave up the nursery business was because it did not pay. When he said he received £300 nett from the sale of the nursery business, he did not include the trade debts. He should think he owed between £800 and £900, outside the £700, borrowed capital. As a matter of fact, he was insolvent when he purchased the stationery business. Before filing his petition, he called a meeting of his creditors, but very few attended, and upon an execution being levied on his effects, he filed his petition in bankruptcy. Eventually the examination was ordered to be adjourned for a month, to enable debtor to file certain accounts.

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

APRIL 28.—On this occasion the chair was filled by W. THOMPSON, Esq., and there were present Messrs. G. S. Ball (Vice Chairman), A. Warburton, D. B. Rappart, G. W. Law-Schofield, H. Greenwood, J. Leeman, R. Johnson, E. J. Sidebotham, W. A. Gent (Hon. Sec.), and P. Weathers.

A very interesting feature of the meeting was a display of handsome and rare hybrids from Messrs. JAS. VEITCH & SONS, which included *Cattleya* × *Philo* (C. Mossie × *tricolor*), *Laelio-Cattleya* × *Ascania* var. *superba*, a charming thing, produced from *Laelia xanthina* × *C. Trianae*; the sepals and petals are of a rich buff colour, and there was the faintest trace of rose in the lower portion of the lip (Award of Merit). Another choice plant, of which four varieties were shown, was *Epidendrum* × *elegantulum* (E. Wallisii × *Endresio-Wallisii*); some of the varieties were heavily punctured with tiny dark brown markings, while others had yellow or bronzy segments, which were spotless. *Zygopetalum Perreoudi* (Z. maxillare × *intermedia*) was given an Award of Merit, which it well deserves, as it proves an acquisition to a not over-rated group; the prevailing colour is a deep bluish-violet, and on the lip there is a faint white reticulation. *Cattleya Schroderae* amabilis, shown by the same firm, hardly received justice from the committee in the

Award of Merit given. It is, undoubtedly, one of the finest forms of *Cattleya Schroderae* extant, the labellum measures nearly 3 inches across the front, and the flower altogether cannot fail to strike the beholder. *Laelio-Cattleya* × *Wellisiana* was not noticed, the form of the flower being by no means pleasing. *Laelia Latona* (L. purpurata × *cinnabarina*) gained an Award of Merit, several good forms were shown; *Epiphrontis Veitchii* is a good *Orebid*, and worth the hybridiser's trouble; the same can hardly be said of *Cattleya* × *Laure-Mossie*. Mr. D. B. RAPPAET received an Award of Merit for *Dendrobium nobile* "Hutchinson's var."

Messrs. LINDEN, Brussels, staged a magnificent lot of *Odontoglossums*, which really spoil one for choice. Magnificent things they were, all of them, the only fault was that too many were sent. The best was *Odontoglossum Wilckeanum* var. *Lindeni*, a dream, carrying a spike with fifteen flowers the groundwork of which was a pale yellow, with intense crimson markings (First-class Certificate). *Odon.* × "*Princesse des Canaries*" received an Award of Merit, the flower appears to be almost an "albino" of *Odon. luteo-purpureum*; Messrs. Linden think not (Award of Merit). *Odon.* × *versicolor* looks like a natural hybrid of *O. crispum* × *O. Coradinei*. *Odon. crispum* "*Princess Clementine*" is a charming little thing, but as the committee saw it to disadvantage it received an Award of Merit only. *Odon. Ruckerianum* var. *lilacina* was voted an Award of Merit, and when better established will prove one of the best. Mr. DUNCAN GILMOUR (gr., Mr. Day) received an Award of Merit for *Cattleya Mendeli* "*Dorothy Gilmour*." Mr. E. J. SIDEBOTHAM (gr., Mr. Shine) showed a very good form of *Dendrobium Venns*, for which an Award of Merit was given. Mr. JAS. CYFHER staged a handsome and valuable *Odontoglossum crispum* called *O. c. Cypheri*, flowers of good size and shape, well marked with a profusion of tiny rosy spots in the centre of the petals; this plant remained in the Manchester district.

The Ven. Archdeacon RAWSTORNE gained an Award of Merit for a very nice variety of *Cattleya Trianae*. Mr. G. S. BALL (gr., Mr. Hay) received a First-class Certificate for a splendid form of *Cypripedium Lawrenceanum* var. *Hyeannum*, a fine bold flower which was generally admired. An Award of Merit was given to the same amateur for *Odontoglossum Rensselaerianum* var. *rubescens*, and also for a well-grown plant of *Dendrobium atro-violetaceum*.

Mr. T. STATIER (gr., Mr. Johnson) exhibited *Cypripedium Lawrenceanum* var. *Hyeannum*, which also received a First-class Certificate; and from the same collection came a well grown *C. caudatum* var. *Wallisii* (Award of Merit). Mr. G. W. LAW-SCHOFIELD sent a magnificent plant of *Cypripedium* × *Schofieldiana*, which was submitted to the committee at a previous meeting as an easy subject to grow; this appears to be the hybrid *par excellence*, the plant exhibited having ten growths and three flowers showing. Mr. J. ROBERTSON had a few nice varieties of *Odontoglossums* and *Cattleyas*. Mr. H. GREENWOOD put up a small group which had good things in it, a fine *Lycaste Skinneri* alba, *O. Humeana* "*Greenwood's var.*" *Dendrobium nobile* *Hillfield* var., a good *Odontoglossum nebulosum*, and *Dendrobium Hildebrandti*. P. W.

ROYAL HORTICULTURAL.

Scientific Committee.

APRIL 26.—Present: Dr. M. T. Masters (in the chair); Professor Müller, Rev. W. Wilks, and Professor G. Henslow, Hon. Sec. *Vine Leaves with Gummy Exudation*.—Some leaves were received from Mr. F. M. Gullin, Iscrod, remarkable for a stickiness. This appeared to be attributable to green-fly, although none was present. The exudation is the result of puncture. *Prunies, Decayed*.—Mr. F. F. Freeman sent some leaves which appeared to have decayed at the junction with the stem. They were forwarded to Dr. W. G. Smith for examination for the presence of fungi. *Growth of Ribes coccinea*.—Mr. Henslow described a rather curious case of a bush growing by the south side of some palings, that had sent up a number of shoots on the north side. The shoots on the southern half were in full leaf, bearing very few racemes; while those on the other side were covered with flowers, the foliage being scarcely apparent.

Obituary.

MR. LYNCH WHITE, JUNR.—It is with much regret that we learn of the death, at Bournemouth, on the 2nd inst., of Mr. Lynch White, Junr., of Homefield, Bickley, Kent, one of the partners in the Thames Bank Iron Co., Upper Ground Street, S.E. Mr. White, who was in his 47th year, and had been in failing health for some time, was the only son of Mr. Lynch White, Senior, Leigham House, Streatham Hill, S.W., who, about the year 1850, established the extensive horticultural heating and engineering business, which has since been carried on in Upper Ground Street. In 1872, Mr. White, Senior, retired from the business in favour of his son and Mr. William Yates Baker, who have, since that date, traded under the title of the Thames Bank Iron Co. The deceased, who was a member of the St. Andrew's Lodge (No. 231), and one of the founders of the Hortus Lodge (No. 2469) of Freemasons, was of a kindly but shy and retiring disposition, and much respected by those who knew him personally. Much

sympathy is felt in the trade for his widow and family, and no less so for his surviving partner.

A. BLICK.—Many readers of this journal will learn with regret of the death at Brentford of Mr. A. Blick, in his seventy-second year. The deceased was for a period of twenty-five years in the employ of the Royal Horticultural Society, acting as foreman under the late G. Eyles and Mr. A. F. Barron, in the gardens at South Kensington, and was much respected.

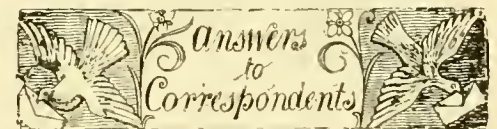
MR. JAS. CHAPMAN.—On the 4th inst., after a long illness, Mr. Jas. Chapman, aged 71 years, a well-known and valued employé for over twenty years of Messrs. J. Laing & Sons, Forest Hill Nurseries, London, and formerly with the late Messrs. Rollison of Tooting.

MR. W. H. CULLINGFORD.—The recent death at an advanced age of Mr. W. H. Cullingford at Tunbridge Wells, removes from our midst an ardent and enthusiastic florist, who was a generous supporter of many societies which encourage the culture of popular flowers, and especially of the *Chrysanthemum*. The popular variety *Cullingfordi* was named after him. The name of Mr. Cullingford will go down to posterity as intimately connected with the introduction to English gardens of the *Cactus Dahlia*, *D. Juarezii*. Towards the close of the seventies Mr. Cullingford obtained plants of the *Cactus Dahlia* from Messrs. Anthony Roozen & Sons, of Overveen, Haarlem, and from him it passed into the hands of Mr. Henry Cannell, nurseryman, Swanley, by whom it was exhibited for the first time at the Alexandra Palace, Muswell Hill, on Sept. 3, 1880. Mr. Cullingford lived long enough to see this interesting stranger develop into forms and colours which at one time would have been inconceivable. R. D.

ENQUIRY.

"He that questioneth much shall learn much."—BACON.

NORAH FRITH would be greatly obliged if any reader of the *Gardeners' Chronicle* would kindly advise her under the following circumstances. My employer, she states, has a large pond bath, centred at the sides and bottom, quite open, which is supplied from a perennial spring; the water, coming through clay, is very hard. Throughout the summer a green scum arises from the bottom, and I am inclined to the belief that the hardness of the water is the cause of it, although in the winter the scum does not spread. Can you suggest anything that would stop it—salt, soda, or any such thing? [If the pool could be covered over, and light excluded, the plant would soon disappear. Ed.]



AFFILIATION: W. B. There are the National Amateur's Association, L. Brown, "The Cottage," Seven Arches, Brentwood, secretary; Nottinghamshire Horticultural and Botanical, J. M. Stewart, 16, Market Street, Nottingham, secretary; Manchester Horticultural and Improvement, W. B. Upjohn, Worsley, Manchester, secretary; Leeds Paxton, Joseph Smith, Asket Hill, Leeds, secretary; Devon and Exeter Gardeners' Mutual Improvement Association, A. Hope, 54, High St., Exeter, secretary. There are many more, for the titles of which, and the names and addresses of the secretaries, we must refer you to the *Horticultural Directory*.

A WET STROKEHOLE: E. A. C. Make the walls and floor with concrete, and face this with Portland cement. If it must be used under water, employ the so-called hydraulic lime-cement. The proper proportions for making hydraulic lime-concrete are as 12 of ballast to 2 of lime.

ANTS ON PEACH: F. T. These insects sometimes devour the stamens and stigmas, and render the blooms infertile; and it is well to prevent their access to the trees. You might place a lath close to the wall raised 6 inches from the earth, and coat it with tar, and round the stem affix a thick band smeared with the same, care being taken that no tar gets on to the bark. Find the ant's nest, and dig it out, or smoke out the inmates.

BACK NUMBERS: *W. B.* We cannot undertake to furnish gardeners' societies with copies, as, owing to their large increase in numbers, to do so would become an onerous undertaking.

BARBE DE CAPUCINE: *G. H.* Cultivated Chicory.

BLACK CURRANT BUD-MITE: *T. F.* The mite is invisible to the unaided sight, and it has nothing whatever to do with the "looper caterpillar" that you found in the buds.

BOOKS: *Jason.* *Garden Craft Series*, by L. H. Bailey; Macmillan & Co., New York and London. Price, a few shillings.—*T. Smith & Sons.* A manual on Peach Culture, by D. T. Fish, sold by Mr. Upcott Gill, 170, Strand, W.C.

CARRIAGE OF BASKET OF GRAPES: *F. S.* The case being pending, you can only await the judge's decision.

CENTAUREA CANDIDISSIMA: *J. M.* You might make the following mixtures:—*Centaurea*, planted at about 15 inches apart, with *Verbena venosa* alternately, to be followed by Truffaut's Peony-flowered *Asters*, raised from the beds in the reserve garden, or grown in flower-pots; zonal *Pelargoniums*, intermixed or edged with *Centaurea*. *Zinnia Haageana* in mixed colours might be used instead of the *Pelargoniums*. The tall *Ageratum mexicanum* or rich-coloured *Petunia hybrida* look well on a carpet of *Centaurea*, as do tuberous-rooted *Begonias* if bordered with the plant. In fact, the uses of *Centaurea* in conjunction with other plants are almost endless.

CHRYSANTHEMUM: *Anxious.* The leaves sent show two distinct modes of discoloration. One leaf has dry, withered spots, measuring up to about $\frac{1}{4}$ inch diameter; these are caused by a fungus (*Septoria*). Leaves like this should be at once picked off and burnt. The other half-dozen leaves do not show spots of this kind. The discoloration in their case begins in a number of reddish-purple spots, which soon become withered in the centre, generally on the upper surface only; ultimately these spread and form a brown scurf. This disease we cannot trace to any fungus. It may be due to insects—green-fly was seen on the leaves sent. Has any insecticide or other chemical been sprayed on the leaves? This might also start the spotting. Look to general cleanliness, and do not force too hard; give more air and a drier atmosphere. Beyond the discoloration, we do not anticipate much harm to the plants. *W. G. S., Leeds.*

COVENT GARDEN MARKET LIST: *Jason.* It is sufficiently long in its present abbreviated form. Space does not admit of everything being mentioned; moreover, the flowers named by you are, as yet, not generally in the market. It is too early, especially so for *Gladiolus gandavensis*; although *G. Colvillei*, *psittacinus*, and other early species might be found in small quantities.

CUCKOO-FLOWER: *Subscriber.* *Cardamine pratensis*, also called Lady's-smock.

CUCUMBERS: *A. J. R.* The worst case of mildew that we have had under our notice for a long time. Clear out the whole of the contents and char them. Thoroughly disinfect the house with burning sulphur, lime-wash the walls, and make a fresh start.

DISEASED PRIMULAS: *C. W. D.* With regard to Primulas from Edge Hill, "The Primulas are attacked by Nematode worms. These are present in numbers just where the decayed parts border on the living tissues. They seem to have begun on the youngest leaves of the rosette, and to be now eating their way into the root-stock. An attack carried out thus would soon kill the plants." *W. G. S., Leeds.*

EARLY STRAWBERRIES: *F. T.* Black Prince, very early, but small; King of the Earlies, medium size, rich and sweet flavour; Noble, large and handsome, plant prolific; Vicomtesse Héricart du Thury, medium size, solid, well flavoured, abundant bearer; La Grosse Sucrée, large, dark red, good flavour, good cropper; Gunton Park, pleasant, brisk flavour, form, and of good colour. These turn-in in the order of their name. Four to five ounces per plant of early-forced plants is the utmost limit of a crop of, say, Noble, King of the Earlies, and La Grosse Sucrée.

FIRST TRUSS ON A TOMATO PLANT: *Jason.* This truss or cluster of flowers would, if the plant had not been crowded with other plants, and had full sunlight, come about 1 foot from the ground, but

the first blooms, i.e., those nearest the ground, often prove abortive. Very likely depressing the stem and keeping laterals rigidly cut off might help the formation of a strong fertile cluster of blossoms at that point.

FLORA OF NORFOLK: *T.* *The Flora of Norfolk*, by Rev. Kirby Trimmer (London: 1866).

GRUBS AT PÆONY ROOTS: *W. H. Payne.* The grubs were dead and rotten when received. They appear to be those of the small "Swift" moth (*Hepialus*), but this is not quite certain owing to the condition in which I received them. Lift the plants and pick out the grubs and chrysalids. But the mischief is done for this season. Dressings of lime-water late next autumn might stop an attack for next year. *R. McL.*

JAPANESE PORTFOLIO, WITH COLOURED PLATES: *Jason.* We have no knowledge of this work.

MILLER'S "GARDENERS' DICTIONARY," WITH COLOURED PLATES, 1807: *G. S.* No approximate price can be named. It might be anything between 15s. and £2. You would be well advised to advertise the work.

MOREA IRIDIODES: *H. E.* We do not understand your question. If you mean Natural Order, it is Iridacea. The plant is a native of South Africa.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*T. H. B.* *Kalanchoe grandiflora.*—*E., Chichester.* Violet Marie Louise, one of the best late bloomers.—*W. H. D.* *Leptospermum scoparium.*—*Mos. C.* *Holboellia latifolia.*—*J. R.* *Oncidium aureum.*—*L. Barry.* *Cyrtopodium punctatum.* *F. M. M.* 1, *Oncidium crispum*; 2, *Cattleya Skinneri*; 3, *Cattleya intermedia.*—*C. W. P.* 1, *Brexia malagascariensis*; 2, *Erica ventricosa carnea*; 3, *Boronia elatior*; 5, *Erica Cavendishi*; 6, *Aotus gracillima*; 7, *Erica ventricosa coccinea minor*; 8, *Carex variegata*; 9, *Lelia purpurata*; 10, *Cypripedium barbatum*; 11, *Sauseviera zeylanica*; 12, *Adiantum cuneatum*; 13, *Adiantum mundulum*; other numbers not found.—*Wallington.* 1, *Pyrus Malus* (Crab); 2, *P. salicifolia*; 3, *Ornithogalum nutans.*—*C. A. W.* 1, *Carex variegata*; 2, *Anthericum lineare variegatum*; 3, *Reineckia carnea variegata*; 4, *Begonia Fischeri*; 5, *Sedum carneum variegatum*; 6, *Oxalis acetosella* variety.—*Subscriber, Worksop.* 1, *Boronia heterophylla*; 2, *Boronia elatior.*—*W. T.* *Geranium phœum.*—*G. J., Crewekerne.* 1, *Acacia cordata*; 2, *Fittonia argyrea.*—*J. A.* 1, *Croton Mortii*; 2, *Croton irregularis*; 3, *Croton interruptus*; the *Dendrobium* is *D. moschatum.*—*G. R.* Thanks for information about variegated *Dendrobium*; we will note the fact.—*T. P. W.* 1, *Doronicum plantagineum*; 2, *Saxifraga cordifolia*; 3, *Gemm sp.*; 4, *Geranium phœum*; 5, *Lithospermum purpureo-ceruleum*; 6, *Pulmonaria officinalis*; 7, *Narcissus Jonquilla.*

ONCIDIUM CRISPUM AND O. MARSHALLIANUM: *J. T., Barton-on-Trent.* Let the *Oncidiums* remain where they are for a fortnight longer, and then ripen their bulbs in a cooler and more airy house. It will be safer to sow the seeds of *Cattleya* and *Lelia* on plants of similar nature, but some may be tried on the pots of the *Cypripediums*.

PALMS: *S. Hampstead.* With regard to these plants, received at the beginning of this month, I have examined and cultivated it. The pink fungus has gone on spreading till all green tissue is consumed. The fungus on *Seaforthia elegans* probably only takes hold on the decaying leaf-bases, although we have found it able to continue to kill the living parts. This being so, the leaves when removed might be cut off further down, and the cut ends painted over with tar, which would neither injure the Palms nor look unsightly. Care must be taken not to let the tar touch the healthy portions. The same could be done in the case of leaf-bases already attacked. At the same time a very dilute solution in water of some disinfectant, say, carbolic acid or corrosive sublimate, might be used occasionally to wash down the outside of the bare stems; it must not, however, be put on the living foliage. The lodging of water in the leaf-bases will favour the fungus-growth; this might be reduced as far as possible. Look also to general cultivation of plants to make them somewhat more hardy. *W. G. S., Leeds.*

PEACH-TREES AND WHITE SCALE: *Elm Park.* Nothing very effectual can be done at this season. You must wait till the leaves fall, when you may

coat the bark with thick lime wash, made with sour milk; or clay, cow-dung and sulphur, mixed with water to the consistency of "slip."

PEACH TREES IN POTS: *T. B.* The method of constantly pinching the growths of the Peach is wrong in principle, the tree not bearing like the Apricot, Plum, and Pear on spurs, but on the buds that form on the best ripened lower portion of the annual shoots. The quantity of bearing wood that you retain on your pot Peaches must be more or less in accordance with the size and strength of the plants. Having made the selection of these shoots, all others, excepting such as may be wanted to give shapeliness to the crown or to extend it, should be cut out entirely, leaving no snags; and in young pot-trees, these formative shoots should be stopped at various heights as may suit the purpose in view. Every year following the selection and pruning of the bearing and formative shoots, and the removal of all others made the previous year, must be carried out in the winter; and the selection and disbudding of new bearing and formative shoots in the spring and early summer. Unless a young shoot is unduly vigorous, it should not be stopped during its period of growth. If a shoot must be stopped, take it back to a lateral nearest its base, and let this shoot take the place of the part that has been removed.

PEACH-WOOD AND SHOOTS: *J. T. B.* The shoots, &c., sent show gumming, probably due to end-sprouts to correct excessive vigour by the use of the knife, or to the rupture of the rind of immature wood by frost. There are also present large quantities of mildew and two species of scale insects. Firstly, you must check the vigour of the tree by the removal of manurial top-dressings, if any, and by severely disbudding and laying-in the wood at wide intervals, in order to get it well ripened. Secondly, in the early autumn lift the tree and replant none of the roots at a greater depth than 8 inches, shortening the longest roots before replanting. Thirdly, get rid of the mildew forthwith by using sulphide of potassium at the rate of $\frac{1}{2}$ oz. to 1 gallon of water, or use a weak solution of the Bordeaux Mixture, or freely use flowers-of-sulphur. Fourthly, annihilate the scale by a smothering paint made with clay, cow-dung and sulphur, laid on in the early part of the winter, detaching the tree from the wall. In hard frosty weather syringe the surface of the wall with water.

PEAR, PITMASTON DUCHES: *X.* The leaves sent are affected with the Pear-mite, a species of *Phytoptus*. We can only recommend you to burn the leaves. Spraying with Tobacco-water might be beneficial.

TOMATOES: *C. E. W.* The plants are suffering from the so-called "sleepy" disease induced by a bacterium or fungus. Nothing much is known about the malady, excepting in so far as our knowledge goes at present, that a plant affected with drooping never recovers its former vigour. Destroy by burning every vestige of the diseased plants.

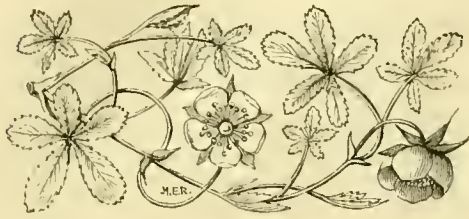
VINE DISEASE: *E. D.* Your Vines are affected with a fungus allied to that causing the Potato disease. Burn the affected leaves, and spray the other leaves with weak Bordeaux Mixture, or potassium sulphide $\frac{1}{2}$ oz. to a gallon. Lose no time.

ZONAL PELARGONIUM LEAVES AND FLOWERS: *G. H.* The appearances are precisely those that would result from overfeeding. The flowers $2\frac{3}{4}$ inches wide are enormous, and one leaf measures 8 inches in diameter. You must discontinue this sort of high feeding, or the plants will get into a hopelessly unhealthy state.

COMMUNICATIONS RECEIVED.—*J. F. D.*—Beginner.—*T. B.*—*H. C.*—*G. M.*—*H. R.*—*S. H. L.*—*E. F. T.*—*G. H. E.*—*D. Bois, Paris.*—*B. W.*—*W. S.*—*A. D.*—*Sir J. L.*—*A. K. A.*, Charkow.—*J. M.*—*W. T. T. D.*—*T. C.*—*J. P.*, Sydney.—*D. T. F.*, many thanks.—*T. B.*—*H. H. D'O.*—*Dr. A.*—*R. E.*—*J. G. V.*—*E. A.*—*G. M.*—*A. B.*, La Mortola.—*E. M.*—*M. T.*—*J. F. D.* (with thanks, Royal Botanic Society).—*Geo. Croucher* (with thanks).—*E. C.*—*A. S.*—*G. J. A.*—*J. P.*, Sydney.—*T. Duerdin Dutton.*—*G. Ringham.*—*W. A.*—*Grape.*—*J. G.*—*T. C.*—*E. T. B.*—*E. T.*—*A. D. Hall.*—*T. Campbell.*—*W. M.*—*E. J.*—*W. G. S.*—*C. E.*—*W. G. H.*—*W. B. H.*—*E. C.*—*W. H. W.*—*G. N.*—*W. H. D.*—*H. W.*—*F. M. M.*—*J. J. U.*—*Grantham*—*W. C.*, next week.

PHOTOGRAPHS, SPECIMENS, ETC., RECEIVED.—*H. Corroyon*, with thanks.—*E. Bedinghaus, Ghent*, with thanks.—*D. N.*

(For Markets and Weather, see p. xi.)



THE

Gardeners' Chronicle.

SATURDAY, MAY 14, 1898.

RESEARCHES IN PRUNING FRUIT TREES.*

EVERY practitioner who has to do with the pruning of fruit trees, if he has studied the subject, knows how various are the views of the different cultivators who have written concerning it, many of them being diametrically opposed to each other, so that the less-experienced reader is apt to be greatly puzzled as to the course he should take. These differing opinions have their rise in the fact that the practices of the older cultivators are constantly being repeated without further proof. In recent years Herr Koopmann has published his researches and observations, extending over many years in a very excellent work, entitled *Grund lehren des Obstbaumschnittes*; or, *Principles of Pruning Fruit-trees*.

This work can be most warmly recommended to the notice of all pomologists, but as it is one that requires careful study, we can only notice here a few striking observations on subjects of every-day practice in gardens.

It is a rule of general acceptance that the hard cutting-back of a young tree results in the strengthening of the shoots, although some pomologists believe that hard-cutting weakens the tree, and consequently has the opposite effect.

Koopmann, in order to put these contradictory views to the test, carried out experiments on a row of equally-developed trees, as to the comparative lengthening and thickening of the shoots after pinning. He found that 1-year-old grafts reached their greatest length when they were not cut-back, which agrees with the view of Gaucher, that by the rearing of standard trees, they should not be cut-back. The thickening of the stem, and the production of wood is, however, not so great if the lateral shoots be not shortened. When the year's growth is relatively of sufficient strength, stems intended for standard trees should not be cut back; but when this is not the case, then cutting back must be performed. These experiments showed that the stem development was greatest when seven-tenths were cut off, leaving but three-tenths. By harder cutting back than this, the resultant shoot was shorter. Taking into consideration, however, the entire production of wood, it was found that the removal of two-thirds of the length resulted in the greatest possible strengthening of a tree. This agrees with the fact that the lateral shoots should be also cut back two-thirds of their length.

Experiments were made on pinching the summer shoots of fruit-trees, and it was found that every shoot that was pinched suffered a weakening of one-tenth as compared with the lengthening of a natural or unpinched shoot.

The earliest is the most suitable time to pinch, or when the shoots are about 4 inches long, and only the terminal bud should be taken. If more than this be removed, the lower buds push out strongly, and the object of the pinching is defeated.

It is an important point in the management of pinched trees, that, only in the second year does a permanent weakening occur if the pinched parts are pruned, and the small lateral shoots shortened back, then the shoots remain permanently weak. On the contrary, if the pruning is performed on parts of a tree below the pinched shoots, the results and purposes of the pinching are frustrated.

We are also enlightened as to the results of Ringing. The breadth of a ring should on no account exceed 4 to 6 millimetres, this being the most suitable because the excised space gets covered in the first season; whereas narrower rings allow the bark to unite too quickly, and broader ones prevent an union taking place. A suitable time for ringing a tree is just previous to its flowering.

Especially deserving of notice are the effects of ringing on the growth of the roots; ringing forming a hindrance to the descent of the sap, the roots being thereby decidedly weakened. Beyond this we find that ringing not only weakens the branch on which it is performed, but likewise the branches below the ringed part break weaker. Ringing should not be carried out on all the branches of a tree at one time, but at the utmost on the half of them, and on naturally weak-growing trees it should be omitted.

Koopmann struck a note of warning in reference to scraping and slitting the bark, not to carry these operations too deeply into the innermost tissues of the bark, recommending slitting to be carried out over the basal enlargement of the branch as far as the stem; and he points out its importance in cases of canker caused by frost or sun-burning. He advised the cutting of parallel lines, beginning above the injured parts, deep down to the wood, and ending in sound tissue below them, this being the only method by which healthy new bark can be made to extend over an injured surface.

In order to make the so-called notching of a branch or shoot of good effect, the notch must be cut down through the bark to the wood at a point just above a dormant-bud; which then leads to the strengthening of the growths below that point, whereas if the notch be made under the bud it weakens them. Koopmann discovered that notching can be used in different methods with diverse effects on various kinds of fruits.

Important are his observations on pruning newly-planted trees. The very common practice of cutting the shoots hard back, i.e., to three or four buds, was always productive of unfavourable results, but a cutting back to one-half the length was satisfactory, and good results were sometimes obtained in the absence of all pruning, but only by such trees as possess a very compact habit of growth. And concerning the much-discussed subject of the season when to plant, Koopmann has much to say. He found that planting during winter, in the early autumn, and as early as possible in the spring, gave the best results; and the worst when the planting was performed in late autumn, and in winter just previous to the occurrence of hard frost.

In Germany, where the winters are, as a rule, of great severity, with bright sunny days, protection against frost by means of mulches,

and against sunbline, have to be used for autumn and winter-planted trees. Koopmann deprecates the planting of fruit trees in the autumn after a wet summer and autumn, the wood being in an immature condition; and he only recommends the planting of Apricots and Peaches at that season if the summer has been a warm one.

PLANT NOTES.

DOUBLE-FLOWERED PRIMULA SINENSIS.

THE named double and the semi-double flowered forms are for many purposes more serviceable than the single-flowered; although the latter are greatly improved, and almost indispensable greenhouse plants. Double Primulas will stand more heat, and the blooms when wired for bouquets, &c. are very lasting. Probably, one reason why so many grow the semi-doubles in preference to the named varieties is that they are readily produced from seed, while the latter can only be propagated by division, and they are also liable to die-off at the base. Those sent out by the late Mr. R. Gilbert would, I think, be somewhat difficult to improve upon. I well remember when working at Burghley House Gardens seeing a houseful of these plants well-grown, and a mass of flowers. There may, however, be better ones which have escaped my notice; but Lord Beaconsfield, The Marchioness of Exeter, and White Lady were the varieties grown by Mr. Gilbert at that time. The old double-flowered white *Primula sinensis* is a useful plant, with a robust constitution, the plants not retting-off so readily as some others do. The cuttings of this will root freely if inserted singly in small pots filled with a light sandy-soil, and plunged in a propagating-frame having a gentle bottom-heat, and not much humidity. Another method of increasing stock is to surround the base of the stem with leaf-mould and sand, and the branches when rooted may then be detached, and potted in 60's in the same sort of soil; at the next shift making use of suitable loam, two-thirds decayed-manure, or half-decayed leaf-mould one-third, a small quantity of charcoal, and sharp sand. Primulas do best when stood on a bench covered with fine coal-ashes, or in a frame placed on the north-side of a wall; they should receive soot or manure diluted with rain-water at every fourth watering. The variety A. F. Barron has been very good with me this season, and will be extensively grown in the future for winter work; the flowers of this variety and those of The Marchioness of Exeter are very similar. A suitable temperature in which to winter double-flowered Primulas is one ranging from 50° to 55°.

H. Markham, Margate.

PYRUS FLORIBUNDA.

THE value of this species is being gradually recognised. The flowers are of a beautiful rosy-red colour, produced in great profusion before the leaves appear, succeeded later by small, roundish fruits. Its blossoms are scarcely, if ever, injured by spring frosts. The plant is better known as *Malus floribunda*, having been described in the *Revue Horticole* of 1881, p. 296, under that name. The plant appears to be a native of both China and Japan, and was introduced to Britain in 1818. E. S., Woking.

CYTISUS ARDOINI.

THIS rare dwarf Broom is now finishing its flowering, which begins about the middle of April. The only native habitat specified for it is Mount Aguglia, near Mentone, at an elevation of 4,000 feet. It was discovered there in 1847 by Ardoino, and named after him. It has been cultivated at Edgo for more than twenty years on limestone rockeries, and some of the first plantings are now worn out, having spread to an area of several square yards, the plants now consisting of hard, and almost flowerless stalks a foot high. It roots so deeply amongst the stones that to clear it out they must all be removed, and the part rebuilt. It is well worth growing for the abundance of the golden flowers, and the early season at which it

* The subject-matter of this article was contained in a lecture given by Herr W. Lauche, at a meeting of the K. K. Gartenbau Gesellschaft of Vienna, March 15, 1897.

produces them. Ten or twelve degrees of frost just when the flowers are opening, destroy them, so the situation should be warm and sheltered. Young shoots pulled up in autumn soon root in pots, and at three or four years old arrive at their most ornamental stage, when they are 2 or 3 feet square. It runs underground and under stones at a considerable depth, rooting as it runs. I have never known seed to ripen in my garden, but though the flowering is liable to be injured as mentioned already, the plant withstands the hardest English winters. It is said that the goats crop it so closely that it is rarely seen in flower on its native mountain. *C. Wolley Dod, Edge, Malpus.*

THE FERNERY.

HARDY FERNS.

(Continued from p. 163.)

In connection with the Hart's-tongues, it is a great pity that a more extended use is not made of the very beautiful frilled or "crispum" varieties of the species, since well-grown specimens of these form extremely decorative and handsome foliage-plants. The true "crispums," being perfectly barren of spores, are somewhat rare, though they are easily enough raised from cuttings of the frond bases. Of late years some forms of this section have been raised with beautifully fimbriated edges to the frills, and well-developed tassels at the frond-tips, while the wild find known as *S. v. c. Drummondii* eclipses all the rest in its combined sports, since it is not merely frilled, fimbriated and tasselled, but has a waved mid-rib producing a sort of "switchback" in each frond; while, to cap the climax, the tips of the fimbriations run out into prothalli, and produce plants aposporously. This curious Fern, be it remarked, was found wild, and is not the outcome of selection and crossing, however much it may appear to be so from its complex character. Another "curio" in this species is *O'Kelly's cristatum*, of which the beautifully tasselled fronds have curious broad sagittate bases, and under congenial culture break out into a rash of youngsters on the upper surface.

Recurring to the work of the season, the sowing of spores reserved from the previous year may now be started advantageously, taking care to sow thinly, and to thoroughly sterilise the soil by previous saturation with boiling water. As a thimble-pot will accommodate hundreds of Ferns in their initial stage, the amateur may economise room to advantage by sowing in small pots or pans. Drain well, half fill with ordinary compost, and top with a little loam or crushed flower-pots; scald, allow to cool, and then sow very thinly on the surface; the spores must not be covered with soil. Insert a little label, and cover with glass, and in a week or two the crop of prothalli will begin to appear, to be followed later by the Ferns themselves *in propria persona*. For Polypodies sow on peat. Now, too, is the time for pricking out the youngsters resulting from last year's spore culture. Crowding is never beneficial, and as all the growing season is now before us, elbow-room should be given betimes for proper development. It is, however, better to prick out into small pans at first, giving only an inch or so of room, rather than to pot off plants of too small a size individually. A very good plan is to prick seedlings round the edges of pots containing newly-shifted adult specimens. Although they will naturally have to be removed later, the active root-action of the old plants keeps the soil sweet, and helps the youngsters forward, with the minimum of subsequent care and attention. In this pricking-out process, a keen look-out should be kept for improved types. It is always possible that a batch of sporelings may contain something new; any of them, therefore, which differ markedly from the rest, should be delegated to a special pan for future observation. It is also highly advisable to keep a register of sowings, since the interest in the results is very much enhanced if the pedigree be known, while higgledy-piggledy operations can never in the long run yield results of same value as systematic ones. A "flake" may constitute an

agreeable surprise, but cannot possibly evoke the same satisfaction as a success, which has been skilfully aimed at and attained.

Finally, where the conditions are congenial for the growth of hardy Ferns, whether under a sheltering north wall, or a shady rockery, or in the conservatory, let the beautiful varieties have their due, and do not devote the space entirely to the common specific forms. These latter are beautiful enough in their way, but their place is in their native hedgebank, glen, or woodland nook, and emphatically not in the fernery proper. British Ferns, as bought by the bunch from the nurseryman or costermonger, or street-hawker generally, are no more the British Ferns of the connoisseur than the wild Roses of the hedges are the prize blooms of the rosarian. They are nothing more than Nature's raw material from which have been elaborated hundreds of far more beautiful types, frilled and tasselled, curled and feathered, and worthy of posts of honour in every collection of foliage plants. Kew Gardens can show a thousand-and-one gems culled as wild sports from our British woods, hills, and dales, and moorlands, or improved by subsequent selection, and yet out of a thousand so-called ferneries, nine hundred and ninety-nine will show naught but the common weeds, and not even a fair selection of those, since about half a dozen species out of forty odd, represent the range of "popular" British Ferns in a country which has eclipsed the world in its varietal Fern production. *Chas. T. Drury, F.L.S., V.M.H.*

CULTURAL MEMORANDA.

ERIOSTEMONS.

VARIOUS species of *Eriostemon* were once commonly cultivated in gardens, and being natives of New Holland, the plants associated satisfactorily with other hard-wood greenhouse plants. Most of the species are of free growth, compact habit, and produce their flowers in great profusion over the period March to August. The soil in which *Eriostemons* thrive is one consisting of fibrous-peat $\frac{3}{4}$, silver-sand $\frac{1}{4}$, with a liberal quantity of crushed charcoal added; and the annual repotting may be performed early in the spring months. The flower-pots should be well drained, and have a few pieces of charcoal laid on the crocks in order to keep the drainage in a wholesome condition, for the plants require water copiously at the roots whilst in active growth, and to be well syringed till it is seen that the newly-potted subject has seized upon the new soil. The plants that are repotted should be placed in an intermediate-house until they make growth, and afterwards the greenhouse will be the best place for them.

It is immaterial in what form the plants are trained, though, for preference, I would recommend the pyramidal form, as this is easily attained by placing a neat stake in the centre of a plant, but not near the base of the stems, or the principal roots may get injured thereby. Let the leading shoot be secured to this stick, training it upwards as growth proceeds, the side growths being pinched in to induce uniformity of length. In the winter afford the plants a temperature of 40° to 45°, and avoid excess of humidity. Large, well-balanced specimens may be grown, provided the cultivator has strong, healthy plants to commence with, in about four years, if the hints I have given are attended to.

The species *E. buxifolius* and *E. cuspidatus* are of a more robust habit than *E. scabrum*, *E. myoporoides* and *E. pulchellus*, though all these are equally worthy of cultivation. Cuttings of the young shoots taken in April strike readily, if inserted in well-drained pots filled with sandy peat, covered with a bell-glass, and plunged in a mild bed of tan or leaves.

Grafting is usually resorted to by nurserymen, and the stocks used are *E. intermedia*, *E. nerifolia*, and *Correa alba*; the grafts will unite readily in about six weeks, and the month of September is the best time to graft. *H. T. M., Stoneleigh.*

RHODODENDRON KEWENSE X.

THE accompanying illustration (fig. 109) is from a photograph taken last May of a plant of this *Rhododendron* growing in the dell at Kew. It is a hybrid, raised in 1875 in the temperate-house by the late Mr. W. Binder from *R. Griffithianum* (*R. Aucklandi*) crossed with *R. Hookeri*; and a glance at woodcut will show that *R. Griffithianum* has had much the greater influence on the hybrid. The two, indeed, are in general appearance very similar. In a genus containing so many glorious plants as *Rhododendron* does, opinions would, no doubt, differ (were it necessary to decide) as to which species is the finest. For my part, I should give my vote to *R. Griffithianum*; and it is, I consider, in bringing so much of the beauty and distinction of that species into the open air that the great attractiveness and value of the Kew hybrid consist. *R. Griffithianum* is not hardy except in Cornwall and similar places, whereas plants of *R. kewense* x have been growing outside in the *Rhododendron*-dell at Kew for the last six or seven years. With a wood at the back, and large masses of *Rhododendron* around, this position is no doubt very sheltered, but the plants that have been out longest have had no artificial protection or covering. The foliage is very similar to that of *R. Aucklandi*, being smooth on both surfaces. The flowers are borne in loose trusses, and vary in colour from almost pure white to a delicate rose. I have measured fully-expanded flowers that have been close on 5 inches across. The plant is at its greatest beauty when half the flowers are open, the other half still in bud. In all the forms (and there are several, although they have all come from the one sowing) the buds are rosy, and in some of the best are even a rich rosy-crimson, contrasting admirably with the paler hues of the fully open flowers. But the illustration gives a better idea of the beauty of *R. kewense* than any words can. In some respects it is the most beautiful *Rhododendron* hardy in the London district. It probably does not fulfil the florist's ideal of what a *Rhododendron* should be (I have heard the truss called "too floppy"), but then the florist's ideal of a plant, and the highest beauty it is capable of attaining, are two very different matters. *W. J. Bean.*

BELGIUM.

NOTES ON NURSERIES.

To say that the newly-established nursery, a Bruges, of Messrs. F. Sander & Co., is a wonderful establishment, whether considered in its vast extent, the elaborate, yet economical arrangement of every part of it, or the variety and excellent condition of the many beautiful plants cultivated in it, is but to mildly describe one of the largest horticultural ventures of modern times. Considering the short time which has passed since the site of the nursery was a bare piece of ground, the vast blocks of glass-houses filled with beautiful plants and flowers seem to have been evolved by magic. And so indeed they have, by that best form of magic—a clever preconceived plan, pushed on by an energetic proprietor with the necessary amount of capital at command, and with the assistance of a diligent staff.

Primarily, it may be said that the object of the nursery is of the same nature as that of all other Belgian establishments, viz., the production of large quantities of plants suitable for decorative purposes, and for cut-flowers, both out-doors and under glass, and also to attempt by the introduction of new plants suitable for the work, to give greater variety than is at present possible, and the lack of which creates such a strong resemblance of one market-establishment to another in the present day.

Orchids form a great feature in this nursery, and a large block of houses built of Pitch-pine, and each having its lobby arranged as a show-house, for the greater part filled with these plants. Each range has three divisions, and a walk through them disclosed thousands of *Cattleya labiata*, *C. Mossiae*, *C. Mendeli*, *Milponia vexillaria*, *Odontoglossum crispum*, *O. Pescos.*

tores, *O. cirrosus*, *Lælia anceps*, *L. purpurata*, *Lycaste Skinneri*, and other of the showy species, each of which contributed something to the display of flowers, to which additional interest is given by the presence of single specimens of many rare species. Among these we noted some remarkable hybrid *Odontoglossums*, notably two very distinct forms of *O. Andersonianum*, several grand varieties of *O. Wilckeanum*, the graceful *O. elegantius*, and a charming variety of *O. Humeanum*, of a bright lemon-yellow colour, with purplish-brown markings on the sepals, and bright purple colouring on the upper side of the column, which caused it to form an unusually striking feature in the flower. Among pretty floral arrangements in the rockeries planted with foliage *Begonias*, at the ends of the houses, specially attractive were an

filled for the greater part with *Kentias* and other Palms and foliage plants in great variety, in all sizes, and in excellent condition, and most of the houses have the lobbies a blaze of colour given by the flowers of the *Azaleas*, which, with *Camellias*, are to form one of the specialties of the establishment. Something like one hundred plant-houses are already completed and filled, another large block in course of construction, and in the course of time probably the greater part of the outdoor nursery will be covered with glass.

A walk through the houses, disclosed house after house of *Kentias*, *Phoenix*, *Cocos Weddelliana*, and other Palms, for which there is a large demand, together with smaller batches of the rarer species and those requiring more heat than would warrant their

beauty. The raising of new varieties is also being undertaken with energy, and last year some 10,000 seedlings were raised. On the lines hitherto pursued in Belgium, it will be next to impossible to surpass the surprisingly beautiful varieties at present known—indeed, the difficulty of improving on the standard forms of years ago has been long experienced, but by the introduction of new elements in the crossing it is hoped to get a fresh race. *Camellias*, too, are being well and extensively grown, and the stock in all sizes seem in the most perfect condition.

In the open nursery were noticed a large stock of standards and pyramids, and planted-out Sweet Bays, large quantities of Lilies, and other flowers suitable for growing for cut flowers in large quantities. For convenience, and to facilitate orderly



[From a photograph by J. Gregory, Croydon.]

FIG. 109.—RHODODENDRON KEWENSE X: COLOUR OF THE FLOWERS ROSE OR WHITE. (SEE P. 290.)

effective arrangement of *Cattleya Schroderæ* and other species, a pretty group of *Odontoglossum cirrosus*, set up with varieties of the scarlet *Masdevallia ignea* and *M. caudata* Shuttleworthi; another of fine varieties of *Odontoglossum crispum*, with a few plants of *Cochlidia Noezliana*; a third was of *Lycaste Skinneri alba*, with some plants of the coloured *Lycastes*; another was of elegant sprays of *Orcidium sarcodes*, set up with scarlet *Anthuriums*; and each of the houses has some objects of special interest at the entrance-ends.

In one of the large warm houses, the collection of *Phalænopsis* seem to be thriving, despite their removal from other quarters, which they often resent, and in an adjoining house a batch of *Vanda Sanderiana*, and the commencement of what is intended to be a large collection of *Nepenthes* are thriving well.

The remainder of the large block of houses is

being grown so extensively as the *Kentias*, and other hardier kinds. *Dracenas* also are largely grown, and conspicuous are *Dracæna Godseffiana*, the best for pots and for cut sprays of variegated foliage, as well as bearing fragrant flowers and forming a pretty scarlet-berried plant; and the white and green *D. Sanderiana*.

Coloured *Crotons* and *Bromeliads* figure in another part of the establishment; and a large stock of *Araucaria excelsa* is also grown. Among these is a small batch of a new variety of very distinct habit, and which arranges its branches in an ovate form instead of the angular manner of other varieties. The foliage also is softer and more curved than in other forms, the whole plant having an elegant Fern-like appearance. A large number of houses are devoted to the culture of *Azaleas*, and are filled with those charming flowers in plants of all sizes, from the one-year-old to the large specimen now in full

and expeditious carrying on of the work, the large packing-sheds, potting-sheds, and store-houses are excellently designed, and kept in as good condition as all the other parts of the vast establishment.

REMINISCENCES OF GHENT.

(Continued from p. 277.)

M. Metdepenningen's Orchids.—Son of the great lawyer Metdepenningen, Grand Bâtonnier de l'Ordre, whose statue adorns the garden in front of the Palais de Justice, and himself one of Ghent's most influential citizens, it is not a matter for surprise that M. Metdepenningen is a zealous cultivator of plants, as are so many of the citizens of Ghent. Within the limits of an ordinary town-garden in the Boulevard Zoologique, the owner has established a most satisfactory collection of Orchids, and at the time of our visit, in spite of the many fine

plants in flower taken to the great show, there was still a very good display of bloom; and what was better still, evidence in every house of the greatest vigour in the plants that reflected the utmost credit on M. Emil Arnaut the gardener. In the Odontoglossum-houses whose stages are edged with Tradescantias, some good species were in bloom, notably varieties of *O. crispum*, *O. triumphans*, *O. Pescatorei*, *O. Wilckeanum*, *O. Andersonianum*, *O. Halli*, *O. cirrhosum*, &c. Of the rarer kinds in bloom were *O. Schillerianum*, and a very richly tinted *O. Ruckerianum*, *Cochlioda Noezliana*, *Ada aurantiaca*, and some of the equally brilliant *Masdevallias*. The *Cattleyas* and *Laelias* were of surprising vigour; and in bloom were remarked *C. Mendeli*, and others, and some specimens of *Laelia purpurata* amply furnished with strong flower-sheaths. In one house was a good batch of the pretty *Oncidium microchilum*; in another a very fine stock of varieties of *Miltonia vexillaria*, and along with these last, *Cypripediums* were well represented.

In the greenhouses, *Roses*, *Cinerarias*, and *Begonias*, made a good display, and adjoining the commodious dwelling-house the lofty winter-garden was effective with grand specimen *Palms*, *Tree-ferns*, &c. reaching to the roof. At one end of this winter-garden a fountain plays over a high piece of rockery, and over which steps on either side lead to a balcony which forms a very pleasant retreat, and that too within a very few feet of the high road, the proximity of which there is little evidence, so quiet is it in this beautiful spot.

Mont St. Amand is a centre of the horticultural trade in Ghent, and it is not difficult to make calls at the various establishments—hurriedly, it must be admitted they were on this occasion. The first entered was that of M. K. J. Kuyk (the well-known establishment of M. Van Geert of former times), where a very fine display both of plants and flowers was discovered. The firm has another establishment at Haarlem, hence the great show of bulbous plants in the nurseries, and at the Quinquennial this year, where they were very successful. Outdoors there were great numbers of *Sweet Bays* to be seen growing in tubs, besides other plants suitable for similar decorative purposes. Foremost among these, so far as show was concerned, were handsome pyramidal *Cytisus* in full bloom; small *Orange bushes*, both in fruit and flower, were very effective; and in the various houses assigned to *Azalea indica* a most brilliant display was made. Then came house after house filled with *Kentias* and other *Palms*, with *Araucarias* of diverse species, *Anthuriums* with brilliant-coloured spathes, and much besides.

M. Petrick has a very extensive nursery, which is kept in admirable order both indoors and out. As in most of the Belgian nurseries, a large proportion of the glasshouse is devoted to the culture of decorative plants, and especially such *Palms* as *Kentias*, *Phoenix*, *Latanias*, &c., and to *Dracena excelsa*, the supply of which never seems to exceed the demand. An interesting feature in this nursery was the collection of rare stove and greenhouse plants, some or other of which are always in bloom, while the beautiful foliage of *Crotons* and *Dracenas*, so well cultivated here, afford effective contrast at all seasons. In the propagating-houses some useful lessons might be learned, for every operation is carried out in a neat and precise manner, which no doubt contributes largely to the success obtained in increasing the stock of plants difficult to propagate.

M. De Smet-Duvivier, in his nursery, makes a great feature of *Orchids*, new plants, and brilliant and delicately-coloured *Anthuriums*. His performances in the way of raising varieties of *A. Scherzerianum*, *A. Andreanum*, and other showy spathed *Anthuriums*, have resulted in a large number of pleasing crosses. The houses, which are connected by a corridor, are in many cases devoted to *Orchid* cultivation, and the first that was entered was a fine and well-cultivated collection of *Odontoglossums*, that afforded a really fine display of the best types of *O. crispum*, *O. triumphans*, *O. Pescatorei*, and others that flower in the spring. There were remarked some plants of *O. Oerstedii*, and of *Ada aurantiaca*.

In another house a good show of *Oncidium sacodes*, with branched spikes 3 feet in length, was noticed, also of *Cattleya Schroderea*, *C. Mendeli*, and a very fine variety of *C. Schilleriana*. On one side was a bank of *Miltonia vexillaria* of the finest large-flowered type; and in other houses good batches of most of the showy species of *Orchids*, some of them bearing flowers. The *Anthuriums* occupy more than one house, and a most brilliant display was made by their spathes, varying in colour from the rich dark scarlet of the best form of *A. Scherzerianum*, to light scarlet, rose colour, white, and white spotted with scarlet and salmon colour. Great advances have been made by M. de Smet-Duvivier in all the classes, and especially in the white-spathed kinds, with even the best of which he is still not satisfied, and is continuing to try to improve. One kind has twin spathes of scarlet colour, which is very striking. Continuing to glance at the contents of the numerous houses running from the corridor, we note several of mixed foliage plants of great beauty, one of the most striking being *Dracena Cannæfolia variegata*. Then followed the many houses of *Palms*, &c., and the great six-span roofed structure filled with brilliant *Azaleas*.

In the corridor and in some of the houses we noted an excellent, clean, and durable arrangement for overhead shelves, consisting of a light framework of iron, on which was placed either common or thick glass, on which some moisture-holding material, such as *Cocoa-nut* fibre, was put on which to stand the plants. All who have experienced the perishable nature of wood shelves, and the harbour they make for insects when perishing, will be fully able to appreciate the benefits to be derived from such shelves.

M. Van Beerlere, at Mont St. Amand, has a new establishment devoted mainly to *Orchids*, and more especially to *Odontoglossums*, some 8,000 excellently-cultivated examples of which are to be found in his *Orchid-houses*, which seem admirably adapted to the culture of these plants, a fact which M. Van Beerlere mainly attributes to the fact that he has studied the requirements of the plants, and is his own architect, and directs the work of building, which is carried out by men employed by him personally. In the large house now in the course of construction, some interesting features in economical building was observed. The side walls had light angle-iron fastened to iron supports fixed to the wall, the angle-iron running along the top of the wall from end to end. Another light iron runs from end to end to form the ridge, and to these irons light wooden bars are cut in, the lower ends being fastened to the light iron which takes the place of a wall-plate, by bolts and nuts, and the ridge ends by screws. By keeping a stock of the iron-work necessary, and of wooden bars which will cut into any length, M. Van Beerlere says he can put up houses to suit himself and his plants at a moderate cost, and, what is of equal importance, in a very short time.

Some excellent varieties of *Odontoglossum crispum* and other *Odontoglossums* were in bloom, and also some good *Cypripediums* and other *Orchids*. In the stove-houses we noticed wonderful specimens of *Dracena Goldiana*, *D. Lindenii*, *D. Massangeana*, and other coloured foliage plants. In the greenhouses fine *Azaleas*, *Araucarias*, &c., and in the lofty-house connecting the smaller houses some very fine *Palms* and other decorative plants.

MARKET GARDENING.

A NEW METHOD OF SPRAYING PLANTS IN HOUSES.

In the successful practice of market gardening, it is most important that every class of plants be afforded the exact conditions of cultivation necessary to bring them to perfection in as short a time as possible. Further, that the means of cultivation adopted should be the most economical that can be obtained.

We have observed from time to time the various ingenious contrivances made use of by market growers. The latest that has come before our notice

is one in use in the houses of Mr. Oakman, Scotland Green Farm, Ponders End, for the purpose of spraying *Cucumber-plants*. Mr. Oakman has nine houses containing *Cucumbers*, each being about 120 feet long, and 11 feet wide. These are furnished with a span-roof, and the glass comes down to within 18 inches of the ground. The *Cucumbers* are planted in mounds upon the ground, from end to end on either side.

At the present time when there is a good crop of *Cucumbers*, one can scarcely stand upright in the house, and in carrying a water-can for the purpose of spraying the plants with a syringe, or watering the roots, the workman would have to walk nearly doubled up. More than one market-grower, we assume, has found some difficulty in getting men who will thoroughly do the work under such disagreeable conditions—and little wonder. If the work be scamped, then the *Cucumber-plants* fail. Mr. Oakman, we believe, has been growing *Cucumbers* for something like thirty years, and these difficulties have been real ones to him. During the last season or two he has endeavoured to find a means of watering and syringing the plants with but little manual labour, and this he has now succeeded in doing, in a manner of which he is justly proud. He has fixed a leaden pipe along the roof-ridge in the centre of the house, and this is perforated on both its sides at distances of about 15 inches. When the tap is turned on, the very fine sprays from these perforations strike upwards to the glass, which breaks the water, and it descends upon the foliage as very fine rain, wetting it from the upper side and cooling the glass. Then about three quarters way down the roof on either side is fixed another leaden pipe, but in place of the fine perforations in the top one, these are provided with nozzles with roses about an inch-and-a-half across, at distances of 3 feet or thereabouts. These are screwed into the pipe upon one side only, but the whole pipe may be turned round readily by means of a wheel fixed near the taps in the centre of the house. Now if we proceed to this point in the middle of any one house we find two sets of brass taps, one set for one end of the house, the other for the end opposite. First we may turn on the pressure of water in the pipe at the summit, and immediately the very fine rain begins to rebound from the glass downwards. Then turn on other taps, and the pipes at the sides send forth very fine sprays from the roses; the wheel is turned, the pipes revolve, and the water is sent first up to the glass, then in the same upward angle as the trellis has, then down straight to the mounds where the roots are, and afterwards upon the leaves below the point at which the pipe is fixed. The house can be damped down without wetting the foliage, or the whole house may be syringed; and further, the borders may be given root-waterings without wetting the plants. It will thus be seen that the workman has simply to turn on the taps, and during the few minutes the moisture is descending upon one half of the house, he may stop or tie shoots in the other half, but the time necessary to spray the plants is very short. The system has two obvious advantages, that it saves much time or labour, and it does the work more thoroughly than a hand-syringe from underneath, and at the same time the spray is a much finer one. The side pipes are always left with the roses standing perpendicularly before the water-pressure is turned off, in order to keep the pipe full of water. The moment water is turned on the spraying commences along the whole length of the pipe, consequently there is no dribble, and the same quantity falls in every part. The contrivance is much preferred to hoses that are in use in some gardens, and indeed the best proof of its value may be seen in the excellent health of the *Cucumbers*.

During the last week in April, Mr. Oakman told us he had marketed 350 dozen fruits; on the following Monday nearly 100 dozen, and on Tuesday when we visited the houses there was still a good number of fruits upon the Vines. Any of our readers interested in the apparatus described above who may visit the establishment, Mr. Oakman will be pleased to give them every information concerning his patent. Cultivators may find that such a method might be

adopted in the case of many other plants that require an abundance of atmospheric moisture. Mr. Oakman grows some Tomatoes, a large quantity of Ivy-leaved and other Pelargoniums and fruit trees, and various crops out-of-doors. P.

TRANSPLANTING VIOLETS AND MARQUESES.

A favourable change having taken place in the weather for planting, no time should be lost in removing plants of Violets from their winter and early spring-flowering quarters, as glass-covered pits and frames, pulling them to pieces (so to speak), and transplanting the divisions in lightish, rich, free-working land, in rows 1 foot apart, and at the same distance from plant to plant in the row. In parting the old plants for replanting, select the strongest-crowned individual pieces for first planting, following these in rotation with the second and smallest-sized plants, shortening the few roots attached to each little plant in process of sorting, and dibble them into the ground at the distances indicated, making the soil moderately firm about the roots in doing so, affording water in the absence of heavy rain. When planting is completed, run the Dutch-hoe deeply between the lines of plants to loosen the ground, and so enable the roots to penetrate freely into the soil, repeating the operation a few times during the three following months, stimulating growth, and destroying weeds. Should the plants fail through lack of fertility in the soil to make free growth, a sprinkling of artificial manure round each plant before applying water will produce a beneficial effect. The object being to obtain large floriferous plants by the middle or end of August, and in view of this, the plants should be gone over once or twice during the summer, removing weak and superfluous runners, and pinching the points of those retained. Plants intended to remain in the ground for furnishing flowers in spring, should be planted in land sheltered on the north and east sides, and that is well drained. Hedges of Privet planted afford capital protection to these and other plants. Plants for blooming in pits and frames during the autumn and winter should be taken up with soil attached towards the end of September, and planted therein, allowing them a space of a few inches every way, and keeping the foliage pretty close up to the glass without actually touching it, the soil of the beds being of the description recommended above. Marie Louise, having mauve lavender-blue flowers; De Parme, pale lavender-flowers; Wellsiana and Princess of Wales are most sought after by the public; especially is this the case with the first and last-mentioned varieties. Both Wellsiana and Princess of Wales produce large purple flowers, which are borne on foot-stalks from 1 to 9 inches long under good cultivation, the Princess of Wales sometimes attaining to as much as 12 inches in length.

Violets pay for generous treatment. Well-developed flowers of Marie Louise and Princess of Wales respectively, 1s. 6d. and 2s. per dozen bunches of twelve blooms, and well-grown plants of Marie Louise will each yield, I should say, at least 3½ dozen bunches during its entire flowering period, and the Princess of Wales 2½ dozen, thus representing about 5s. per plant. So that a pit 100 feet long and 6 feet wide would afford space for about 500 plants of the description indicated, the yield of which would represent £125 on the basis given above, and which I think within the mark.

The yellow Marguerite (Fou d'Or) is another good paying flower, realising (according to the flower market report published in the horticultural press) from 2s. to 4s. per dozen bunches of twelve flowers during the summer and early autumn months. The plant is not only a rapid grower, but also a profuse flowerer; the more you cut the flowers (always with long stems, mind), the more floriferous they grow. No time should be lost in transplanting the autumn-struck cuttings from cold frames and pits into ground of ordinary texture, depth, and fertility; setting the plants in rows 2 feet apart, and at the same distance from plant to plant in the rows, pressing the soil about the roots in planting, and afterwards affording water to settle the soil about the latter; repeating the application should dry weather prevail, until the roots have taken to the soil. H. W. Ward, Rayleigh.

FRENCH BEAN CANKER.

(*Gleosporium Lindemuthianum*, Sacc. & Magn.)

This destructive disease has been received from various parts during the past three years, and appears to be not uncommon in this country. It is most frequent on the pods of French Beans and Scarlet Runners, but also attacks the leaves and stem, and is by no means uncommon on the Beans themselves. On the pods, where it does most mischief, the fungus first appears as small, scattered, dark-coloured patches, surrounded by a reddish line. These spots gradually increase in size, and frequently

early age, and usually soon die, the fungus eating through the tender stem.

Soon after the depressed black patches are formed, their surface becomes studded with small pink granules, consisting of myriads of minute spores or reproductive bodies, held together by a viscid substance. These spores are readily set free by rain or dew, and washed on to healthy leaves or pods, where they quickly germinate, and form the starting-point of a new centre of disease, which in turn produces spores; consequently, when the disease once appears, its rapid spread is certain, unless stringent methods for its arrest are adopted.

If a very thin slice through a diseased spot is examined under the microscope, closely packed very slender threads will be seen, each bearing a single minute spore at its tip; mixed with these threads are scattered, long, dark-coloured, spine-like bodies. These brown spines, the use of which is unknown, are the only justification for establishing the genus *Colletotrichum*; in every other respect the species included in this genus are identical with the older genus *Gleosporium*. It has been shown by Professor Halsted that, in the United States, *Gleosporium lindemuthianum* is also parasitic on the rind of Cucumbers, Pumpkins, Water-melons, and Musk-melons.

Preventive Measures.—Spraying with dilute Bordeaux Mixture, if applied at an early stage, checks the spread of the disease; or, as a preventive measure, if the spraying is first applied when the seedlings are about three weeks old, prevents their being attacked, provided the seed was free from disease. Diseased plants should be removed the moment the fungus is observed, otherwise adjoining healthy plants soon become infected. If this simple means of prevention be consistently carried out, the disease would soon entirely disappear; whereas, if neglected, a spread of the pest is certain.

It is perfectly well known that diseased seed produces diseased plants; and, furthermore, the Beans may show so little external sign of the disease, that its presence might not be suspected. Hence, it is very important that seed obtained from a district where the disease existed, should not be sown. It may be accepted as certain that if seedling Beans show the disease, the disease existed in the seed. Geo. Massee.



FIG. 110.—FRENCH BEAN CANKER: *GLEOSPORIUM LINDEMUTHIANUM*.

1. Fruit of Scarlet Runner, showing the disease; nat. size.
2. Section through portion of a diseased spot, showing the minute spores borne at the tips of slender threads or sporophores; also a long, dark-coloured spine growing up amongst the sporophores; x 400.

grow into each other, forming large, irregularly-shaped blotches, having the dark central portion sunk below the level of the healthy portion. When the blotches are large and numerous, the pod is usually bent and deformed. When leaves are attacked, the veins are first blackened, the disease afterwards forming blackish blotches, which become dry and break away, forming holes in the leaf. Young portions of the stem and leaf-stalks are also attacked, and not unfrequently corroded to such an extent that parts above the wound die, and eventually fall off. Diseased seeds are pitted and blistered, and it has been clearly proved that if such are sown, the young plants resulting show the disease at a very

NURSERY NOTES.

STANDARD BORONIA MEGASTIGMA.

THESE are a specialty at the Hassecks Nurseries, Sussex, of Messrs. W. Halchin & Sons. This style of plant is obtained by taking up a straight erect shoot to the height of 20 to 24 inches, stepping it, and thus inducing a break, which assumes the half-pendulous habit peculiar to the plant. But there seems to be a strain of this plant about which it is hardly desirable, of which specimens can be seen at the Hassecks Nurseries; the growth is rigid and upright as that of *Epacris*, while the flowers are small, and lacking in beauty. The desired form of this fragrant *Boronia* is of that free-branching, almost half-pendulous character, with flowers along the whole length of the shoots.

VIOLET PRINCESS OF WALES.

To realise the capabilities of this very fine variety, it should be seen at the Hassecks Nurseries. The plants put forth a bold and striking foliage, and produce flowers of large size, very fragrant, and borne on stout stems 9 to 12 inches in length. It is a Violet that should be planted out to be seen to the greatest advantage.

ACOKANTHERA SPECTABILIS.

This fine plant, better known as *Toxicophloeæ*, with its sweet and powerful perfume, is well named the Winter Sweet. Plants two years old from cuttings can be seen at the Hassecks Nurseries blooming with remarkable freedom, the long sprays of flowers formed of terminal and axillary corymbs. It is a plant of slow growth, flowering in a young state, and remaining for a considerable time in blossom. They appear to thrive under generous treatment, and the skill shown in making the best of this sad kindred plants is witnessed at these nurseries.

PRIMULA VERTICILLATA SIMENSIS.

This is one of the most useful and showy species of Primulas for blooming at this season of the year—foliage and flowers alike are most attractive. A large batch of it is grown every year at the Hassocks Nurseries, and it finds a ready sale in Brighton for its sweet Cowslip fragrance, in addition to other desirable qualities. The plants are in 6 and 7-inch pots, they grow luxuriantly, and send up scapes bearing three or so whorls of yellow blossom. Plants are raised annually from seeds, and under proper treatment they soon attain to a good size, and two-year-old plants can be grown into superb specimens. Mr. W. Richardson, the manager at these nurseries, crossed this species with the common Polyanthus, and secured seeds, one of which germinated, but refused to grow much, and it is now a small plant, with about four leaves, which are of the Polyanthus type, and nothing seems to be capable of adding to its stature. As a matter of course, Mr. Richardson believes he has secured a cross, but its inability to make any progress is to him a matter of uncommon concern. R. D.

COLLINS & GABRIEL, HAMPTON.

Little more than a decade and a half since the name of Hampton, in so far as the market-growing industry is concerned, was scarcely known beyond its own small area. When Messrs. Collins came hither, the few market-nurseries could be counted on the fingers of one hand. Now there are, in Hampton alone—which is quite independent of Hampton Hill, Hampton Court, or Hampton Wick—upwards of seventy nurseries, either wholly or chiefly given up to growing plants, fruits, or flowers for London and provincial markets.

The nurseries of Messrs. Collins now cover something like a dozen acres, which is in great measure devoted to the culture of hardy plants and bulbs for the two-fold purpose of supplying the markets with bloom, and the wholesale and retail trade with the plants and roots. In these dozen acres there is scarcely a waste yard, the endless nursery beds being packed to overflowing with the choicest hardy plants and bulbs. In the former, large collections of Flag Irises, Pyrethrums, Phloxes, and such things as Michaelmas Daisies, and Sunflowers, are to be seen in great numbers. While the bulbous portion include all the leading kinds of Narcissi in their several sections and in great numbers, the variety Emperor, as indeed all such vigorous kinds, do splendidly in these nurseries; the great flag-like leaves are upwards of 2 feet high in a season unequalled for scarcity of rain; in more congenial seasons I have measured the foliage of this kind when upwards of 2½ feet high, and 1½ inch wide, which will give an idea of the health and vigour such things attain in suitable soil. The Bushy Daffodil has likewise been a feature here, perhaps the only place near London where this indispensable kind has been grown to such perfection. Nor is it merely Narcissi and Daffodils, all of which are grown by hundreds of thousands, but equally so of many bulbs, such as Liliums, Tulips, Gladiolus, and so forth. The former are a great feature here, as indeed are Tulips, which are forced in great numbers onwards from November each year. Among miscellaneous things of a tuberous-rooted nature are Alstromerias, which are grown not in rows 18 inches apart, but *en masse* in beds 4 feet wide, and something like 100 feet in length. Pæonies cover several acres here, and the very choicest sorts are included. Delphiniums also are largely grown, and Christmas Roses, and an endless variety of hardy plants. An excellent strain of Polyanthus, noteworthy for size of flower and decisive colouring, was flowering grandly, the yellow, white, and orange shades being in many instances superb. As showing how the *multum in parvo* system is applied here, it should be stated that Apples and Plums are planted over some six acres at the edge of the pathways, thus virtually securing a crop that occupies but little actual space. Roses are also largely grown, chiefly Tea and H.P.'s. In the glasshouses are pink and red Roses of the H.P. class, largely, if not all, budded on the place. Bermuda Easter Lilies, Tea Roses, Gladiolus The Bride, and

Gardenias. There are large quantities of few species in the glass department. Several houses now contain Lilies. One long range is entirely given up to Gardenia, splendid vigorous bushes, some 4 feet high, and as much through, being crowded with fragrant flowers. The many houses now filled with Roses will presently find a new crop in the shape of Tomatos, already many thousands of which are potted in readiness, and Cucumbers, or such things, for the summer months. Then, with the advancing season for autumn and winter-blooming, Chrysanthemums are extensively grown. This is, indeed, a business of many branches, wherein the many intricate details are grasped and controlled with good judgment.

VARIORUM.

HOW TO SLING A HAMMOCK.—The ideal way to hang a hammock is to place it 6½ feet from the ground at the head, and 3½ feet at the foot. The rope that secures the head should measure about 1 foot—it is better to be less—and at the foot about five times that. The object of this is to keep the head comfortable by being nearly stationary, while the lower part of the hammock will swing freely. *Canadian Horticulturist.*

THE WEEK'S WORK.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Early Vines.—It will now be necessary in the warmer parts of the country, and especially on light loams, to make an investigation of the borders outside the vineries, as these will be getting in need of moisture owing to a deficient rainfall. If any part of the soil be found in a dryish condition, water should be afforded in quantities sufficient to penetrate to the drainage, and pass out of the main drain. If a part of a border is moist whilst another is dry, there is almost sure to be something wrong with the drainage of that part, and a note should be made of the fact for future rectification. If an inside border has to be afforded water, it should be made tepid before applying it; but for an outside one, river, pond, or water from an open-air basin is suitable. Spring or well-water should not be used without first exposing it to the air for several days. Liquid-manure may be added to the water used if a stimulus to growth is believed to be necessary. In place of liquid-manure, fish-manure, and bone-meal, may be strewn on the surface previously to applying water: An outside Vine-border should be stirred with the hoe frequently, so as to allow the air and sun's warmth to penetrate the soil, and to prevent excessive evaporation, hence it is unwise to trample on a Vine-border or to grow plants of any kind upon it. A crumbling surface is as good as a mulch, without having the disadvantages of the latter.

Planting Vines.—The Vines struck from eyes this year should be afforded as long season of growth as possible, and preparations should be commenced for planting them in the borders now that the fruit is ripe on the canes that are going to be rooted out. The work need not be delayed till the Grapes are consumed, but the remaining portion of the crop may be cut and bottled, and the work of border-making begun. After grubbing up the worn-out Vines, wash the wood-work and white-wash the walls to about 6 inches below the ground level. Then excavate a portion of the old border at the front 4 feet in width, together with the drainage materials the entire length of the vinery, which will afford sufficient space for the roots of the young Vines for one year. It will be well to make an inside border, and let this get filled with roots before allowing the roots to grow outside. To prevent this the arches may be filled up temporarily with bricks, having a coat of plaster on the inner side. The roots should be quite under the control of the cultivator, and to this end the border should have a bottom of concrete. If a border is not concreted, the renewed portion may be concreted at this season, and the remainder of the area inside and outside at such times as additions are made to the border. The total depth of a border need not exceed 3 feet 6 inches. As soils for making a border, use sods cut from an old pasture from 4 to 6 inches thick, plaster or lime-rubbish one-eighth, charred

soil one-eighth, and bone-meal 1 quart to each wheelbarrow-load of the soil, chopping it all up but little or not at all, but laying the sods regularly, scattering the other ingredients between the layers, and making these very firm, and carrying it about 6 inches higher than the required height. When all is ready, throw out a shallow wide trench next to the front wall, spread out the roots a little, affording a space of 3 to 3½ feet from one Vine to the next, and shade and keep close till they begin to grow, then treat them the same as growing Vines. Let the main cane grow without stopping till it reaches the back-wall, if it be a lean-to house, and then let it extend down the back wall unchecked, the main object being to encourage by unchecked top-growth the extension of the roots in the border. If the Vines are likely to become pot-bound in the 8-inch pots they are now in, before it is convenient to plant them, shift them into 11-inch pots. The best black variety for producing early Grapes is Black Hamburgh, and the best white, Foster's Seedling.

Tomatos.—Let all bare spaces on the trellises in late Peach-houses be filled with strong Tomato-plants—the fruit is sure to be acceptable; and let some of the plants have clusters of fruit already set. In the course of a few weeks, a top-dressing of soil and manure will be required, but not at the first, and much water should not be afforded. Plants in bloom should not be stimulated with either new soil or manure. Plants that have filled their allotted space should be stopped by nipping out the leading point or points; let lateral shoots be removed, and curtail the leaves if crowding is feared.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

What to Sow.—Seeds of *Primula sinensis* and of the hybrid (florist's) *Cinerarias* may be sown for the main batches in well-drained seed-pans or boxes, these being prepared in the manner advised in a former calendar. As *Primula* seed generally germinates slowly, place the pans, &c. in a frame in a moderately cool position, covering them with sheets of glass, over which put moss or brown-paper to prevent the sun reaching them, as affording water before the seedlings appear is almost certain to kill the seeds. *Cineraria* seed may be similarly treated. A small quantity of seed of *Celosia plumosa* may also be sown in warmth, a late batch of this highly ornamental plant being usually of great use in the conservatory late in the summer. *Panicum altissimum* seed, if sown forthwith, and the plants grown in heat for a time, makes useful stuff by the arrival of the autumn. Sow in pans filled with a light sandy mixture, and when the plants are large enough to be handled readily, pot them into thumbs, and repot as the plants increase in size till they come into 48's; this species of grass has a light and elegant appearance with other plants, and is excellent for associating with others. If an early batch of *Calceolaria hybrida* is wished for, a pinch of seed may now be sown in rich soil made firm; and as the seed is extremely small, care must be taken to distribute it evenly on the surface of the soil. Place the pot or pan in a moist, shaded position in the greenhouse or vinery, and in about one month the young plants will be ready for placing in thumb-pots. Shade and moisture are essential to this plant, and especially after each repotting. It is not too late to sow a small quantity of *Balsam* seed should the earlier batch have turned out unsatisfactorily.

Table and Vase Plants.—Plants of *Panicum variegatum* that are established and in active growth, may have the points taken off closely, sticking these in around the base of the other plants, and these will soon cover the tops of the pots, and form a pleasing contrast in the case of *Dracenas* and other plants with dark-coloured foliage. It is a means of doing away with the use of wood-moss for covering the pots, and is neater and more ornamental.

Achimenes.—The plants if growing freely may be shifted into flower-pots of a larger size, and stakes afforded as the shoots lengthen. If grown in pots it is best not to allow the shoots to fall about in a careless manner, or the stronger ones will smother and spoil the weaker. Let these plants be shaded from sunshine or they will soon spoil. *Achimenes* growing in baskets should have the shoots tied in somewhat, but sticks will scarcely be needed. Afford a further shift to tuberous-rooted *Begonias* which have filled their pots with roots; gradually harden off *Spiræas*, *Azalea mollis*, *Lilacs*, *Rhododendrons*, &c., that have been forced, finishing the hardening off in cold pits or frames before standing them out of doors.

HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Strawberries for Fruiting in the Autumn.—Any healthy forced plants of Vicomtesse Héricart du Thury, La Grosse Sucrée, John Ruskin, or others which have ceased to bear, will give another crop of fruit in the autumn if they are properly treated from now onwards. The plants should be cleared of all the fruit-stems and decaying leaves, and the soil afforded clear water copiously, and if any red-spider infest the foliage, the crowns should be dipped in suds made with Gishurst Compound-soap at the rate of 4 oz. to 1 gallon of rain-water, not rinsing off the suds, but shading the plants from bright sunshine for a few days in a cold pit. The plants may be afforded air in abundance at all times, the lights being pulled off in dull weather, and allowed to remain off on mild nights. In the meantime, a plot of ground should be got in readiness for them by digging and manuring, and as fruit will be ripening when the sun's power is declining, the plot must be selected where sunshine reaches it all day long. If farmyard manure is not available, a good dressing of phosphatic manure may be afforded instead, applying it after the plants are established. The soil should be dug deeply, and the clods broken up with the spade, otherwise the plants will be liable to suffer during dry weather. Before planting, place the plants for a few minutes in water, so as to thoroughly moisten the soil; the doing of this saving much trouble, it not being an easy matter to soak a dry mass of soil and roots after it is planted, and if the soil gets thoroughly dry, the plant is sure to fail. Remove all the runners and the crocks before planting, but do not break up the ball, and let the soil be made firm around each plant by ramming. The rows of Vicomtesse H. du Thury and John Ruskin should be 2½ feet, and the plants 2 feet apart in the rows. La Grosse Sucrée being a less vigorous grower may be planted at 6 inches closer each way. As soon as planting is finished, mulch with stable-litter or half-decayed manure, and in dry weather afford water occasionally until the plants are established; afterwards very little attention is needed till the fruit turns-in in September, with the exception of removing all flower-stalks till the first week in August, and all runners from the plants and weeds from the soil. The three varieties named are the only ones which I have found satisfactory in the autumn, and the plants bear good crops the following summer.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorset.

Cymbidiums.—*C. eburneum*, *C. Traceyanum*, *C. affine*, *C. canaliculatum*, *C. Mastersii*, *C. elegans*, *C. aloifolium*, *C. chloranthum*, *C. longifolium*, *C. Lowio-eburneum*, and the reverse cross *C. eburneo-Lowianum*, thrive well in a cool part of the intermediate-house if the plants be shaded from the sun. The plants may be repotted as they pass out of flower. Having thick fleshy roots, they require extra sized well-drained pots. Use a compost consisting of one half turfy loam, the other half peat and sphagnum-moss, to which may be added a little leaf-soil and crocks in sufficient quantities to keep the soil porous. Press the compost with moderate firmness, and instead of elevating the plants above the rim of the pot, keep the soil at least half an inch below it. *C. Lowianum*, *C. Hookerianum*, *C. giganteum*, and *C. pendulum* do not require so much pot-room as recommended for the other species. When properly potted and cared for, they may remain undisturbed for several years, producing flower spikes more freely when in a pot-bound condition. *C. Devonianum* has just bloomed, and may be repotted if necessary. The *Cymbidiums* require plenty of water during the growing season, and when well rooted in the compost they grow fast and bloom freely, the leaves retaining their tips fresh and green.

Phalenopsis.—The species belonging to this genus when well bloomed are among the most beautiful of Orchids. Such species as *P. Schilleriana*, *P. smilis*, *P. Aphrodite* (grandiflora), *P. Sanderiana*, *P. intermedia*, *Portei*, and *P. Esmaralda*, have in many collections now passed out of flower, and in various ways the plants show signs of activity. Those plants that require more root-room should be afforded the same at once, or if the potting materials be worn out or likely soon to decay, this should be renewed. In some cases the old sphagnum-moss will have grown so luxuriantly that when watered it remains wet for too long a period, and will, therefore, need to be replaced with new. Previous to overhauling the plants, the old moss should be allowed to become somewhat dry, as it is

more easily removed than than if wet. *Phalenopsis* should not be disturbed by rebasketing oftener than is absolutely necessary, as their roots are very susceptible to injury. After taking out the moss and drainage materials, it is a good plan to immerse the basket for a few minutes in a tub filled with water, when with a thin bladed knife the roots can easily be detached. Teak-wood baskets of suitable sizes should be selected that will last for several seasons, using new baskets in preference to old, the young roots attaching themselves more readily to new wood. Place the plant in the centre of the basket, and spread the roots out as near to the sides as is possible, then fill up to three parts of its depth with clean crocks, keeping the collar of the plant raised above the top bar, and surface the drainage with good sphagnum-moss and crocks in equal proportions, pressing these moderately firm; then place a layer of moss over the whole so as to form a round cone over the roots of the plant. Place the plants in a shady position on the north or west side of the East Indian-house or plant-stove. They will succeed if suspended near the glass, or stood upon suitable stands down on the side stages. When suspended from the roof they are safer from slugs and cockroaches, such dangerous foes to the young roots of these plants. After rebasketing very little water will be necessary, and for a time merely sprinkling the moss on the surface to keep it fresh and green will suffice. Freshly-imported plants generally arrive on long blocks of wood, or on a bit of the branch on which they grew. Any that arrive at this season may be removed at once from the blocks, &c., and put into baskets, but any that arrive during the autumn should not be so treated until the following spring.

The Dove Orchid (Peristeria clata) grows freely on the shady side of the warmest house; and it is now commencing to push out new roots, which is the right time to surface the compost with sphagnum-moss, into which the young roots delight to penetrate. The plant now requires a liberal supply of water until the new pseudo-bulbs are made up. When the new growths commence to form their bulbs, the plant should be gradually inured to extra light, so that by the time the latter are completed they will have become accustomed to full sunshine.

THE KITCHEN GARDEN.

By J. W. McHATTE, Gardener, Strathfieldsaye, Hants.

New Zealand Spinach.—This vegetable, *Tetragonia expansa*, has much to recommend it in hot and dry soils as a substitute for common Spinach, it being less apt to run to seed. The seed should now be sown in drills 2½ feet apart, and ½ inch deep, in the open ground, and the seedlings thinned out at an early date to a distance of 18 inches apart in the rows. Much ground need not be put under this crop.

Vegetable Marrows.—All the forwardest plants may now be planted in rich soil, and covered with frames or handlights. The plant being tender, cold must be guarded against by covering the frames, &c., till the end of the month. If a mild bottom-heat can be afforded, it will add vigour to the plants at the first.

Asparagus should now be in full growth, and all heads that are fit should be gathered daily. Let these be tied up into bundles after sorting them into different sizes, and place them butt-end downwards in damp soil or sand, or saucers containing water, and keep in a dark place. Afford a dressing of agricultural salt to the beds at the rate of 2 oz. to the square yard, doing this in showery weather.

Kidney Beans.—Large sowings may be safely made of such varieties as Canadian Wonder, Negro Long-Pod, Ne Plus Ultra, and of the climbing Tender-and-True. This last-named plant grows to 6 feet in height, and produces abundance of long rather narrow Beans of fine quality, and the seed should be sown thinly in rows 5 to 6 feet asunder, whilst Canadian Wonder (Red Flageolet) may have 3 feet, and the others named 1½ to 2 feet spaces.

Rhubarb.—If flower stems show, cut them off low down; and if the plantation is aged afford it, in rainy weather, a dressing of bone-meal and guano, and pull the stalks for use, a few from each plant, so long as they are tender.

Destroying Slugs.—These are a great plague in some gardens, eating off seedling plants and doing other damage. The most effectual method of destroying them is hand-picking in showery weather, and dust the plants that are mostly eaten by the creatures with freshly-slaked lime late in the evening; also setting baits of bran, Cabbage-leaves, and of slates and tiles elevated about half an inch from the ground.

Potatoes.—Hoe the ground between the lines, and draw a small quantity of earth up to those stems that have pushed through it.

Hoeing and Weeding.—There is no work in the kitchen garden which at this time requires closer attention than the destruction of weeds before they seed, and the hoe should be kept going whenever the state of the soil will permit.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

The Flowering Shrubs of Spring and Early Summer.—At the present time there exists to those whose delight and chief hobby is to plant hardy-flowering deciduous shrubs in the garden and pleasure-grounds of country residences, a great treat at this season. In English gardens nothing can excel the beauties of such shrubs, especially when these have arrived at mature age, or they are planted in masses; the colours of the flowers, the different tints of the foliage, and sometimes the fragrance emitted being so charming. It must suffice, however, merely to give the names of a few, as for example the double-flowered Gorse, the graceful Broom, *Ribes* or flowering Currants, in variety; *Berberis Darwinii*, with its graceful yellow inflorescence, effective as isolated plants or as groups—and excellent as a garden-hedge plant, flowering abundantly in such position if not clipped too closely. The bright-yellow flowered *Kerria japonica*, either single or double flowered, is a capital shrub, or it may be trained on a wall; the many varieties of *Cerasus*, or Cherry, of which *C. japonica albo flore-pleno* and *C. Juliana folius variegatus* are fine; and especially fine is *C. Wateri*, a beautiful dense-flowering variety, with pink blossoms. In direct contrast to these, as regards form and colour, are the bright flowers of *Cydonia japonica*, *C. Maulei*, and others; the yellow-flowered *Forsythia viridissima*; *Staphylea colchica*, *Wistaria sinensis*; the chaste *Amelanchiera*, and the snow-white *Deutzias*, *crenata*, and *gracilis*. All of these, and many others, are at the present time in flower, and they will be succeeded by *Laburnum* and others—*Cytisus*, *Lilacs*, *Clematis vitalba*, *C. montana*, *C. viorna*, and hybrids. Of shrubs with ornamental foliage, there are gold and silver forms of the common Elder, with variously-formed leaves; the Sea Buckthorn, whose leaves are grey-green; *Eucrymus radicans folius variegatus*, *Aucuba*, *Ilex* in many varieties, *Osmanthus ilicifolius*, *O. myrtifolius* and the variegated forms of the first-named, *Eucryphia pinnatifolia*, *Berberis*. In the milder parts of the country the fine New Zealand and Japanese species of shrubs might be planted, and for a list of these reference might be made to p. 684 of the *Gardeners' Chronicle* for December 5, 1896.

Creepers.—As these plants grow rapidly at this season, no time should be lost in thinning-out the weak, flowerless shoots, and nailing in sufficient good wood to cover the allotted space. In the treatment of climbing plants of whatever species, crowding the growths should, as a rule, be avoided, or the desired effects will be spoiled, particularly is this applicable to the climbing *Clematises*, *Bignonia radicans*, *Loniceras*, *Vitis Colquhettiae*, *Roses*, and *Wistaria sinensis*. If the soil of the borders in which climbers are grown is in a dry state, which is almost always the case if these skirt a high wall or a building, water should be afforded freely from time to time, otherwise progress will be slow and unsatisfactory. Where Ivy covered walls exist, the present is the proper season for clipping the Ivy close to the wall, and cleaning out the accumulated rubbish. New leaves soon develop, which afford a bright green tint in place of the dull green of the old foliage.

General Remarks.—The recent rains have been grateful to all kinds of vegetation, and growth is going on with rapidity; equally so is that of the weeds, and the latter, when the ground is sufficiently dry should be pulled up, or the ground hoed on a dry, sunny day. Continue to plant out from time to time all kinds of bedding and border plants, excepting those that are tender; and prepare for the chief bedding-out, which may soon be undertaken in the south.

EXTRAORDINARY RATING OF GLASS HOUSES.

—The *West Middlesex Times* reports in its issue of April 30, that Messrs. CORNICK & HEARD, nurserymen, of Ashford, Middlesex, on Tuesday last appeared before the Assessment Committee of the Staines District Council to appeal against the high assessment of glass houses, but without redress, and were told their glass would be measured and assessed at the rate of £100 per acre.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be WRITTEN ON ONE SIDE ONLY OF THE PAPER, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	MAY 16	{ Devon County Agricultural Show at Newton Abbot.
WEDNESDAY,	MAY 18	{ Ancient Society of York Florists' Exhibition.
FRIDAY,	MAY 20	{ Royal Botanic Society, Lecture.

SALES.

MONDAY,	MAY 16	{ Japanese Lilies, Tree Ferns, Palms, Greenhouse Plants, Gladioli, &c., at Protheroe & Morris' Rooms.
TUESDAY,	MAY 17	{ Sale of the Surbiton Nurseries, Ewell Road, Surbiton; also, Lease old House and Shop, together with the Plants, Horse, and Utensils in Trade, on the Promises, by Protheroe & Morris' (two days).
FRIDAY,	MAY 20	{ Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—56° 1°.

ACTUAL TEMPERATURES:—

LONDON.—May 11 (6 P.M.): Max., 58°; Min., 50°.
 PROVINCES.—May 11 (6 P.M.): Max., 56°, S. Devon: Min., 44°, Aberdeen.
 Rain, dull, mild.

THE exhibits of Radishes from the Chiswick Gardens of the Royal Horticultural Society, on

Tuesday last, reminds us that in a recent number of the *Revue Horticole* M. H. DE VILMORIN speaks of small, early Radishes, known and widely appreciated, especially on the Continent, under the name of "Tous les mois." The Radish, as supplied by the average English greengrocer, is but too often old, tough, hot, and stale; but there is no reason why, with a little care, we should not always see this dainty vegetable fresh, crisp, and young.

M. DE VILMORIN speaks of the wide diffusion of Radishes; how they are to be seen daily in the markets of the principal towns and cities all over the world wherever Europeans congregate. In hotels, large and small, restaurants, railway-buffets and inns, Radishes are always to be had. In African and other campaigns, wherever troops are likely to be quartered in one locality for several months, one of the first occupations of the officers is to establish gardens where, among other seeds, Radishes are sown, and, three weeks after the date of sowing, are ready for eating.

During the long winter-exile of whalers or explorers, boxes stored in the boats, often with earth especially brought for the purpose, are planted, whenever a little daylight will allow of the growth of vegetation, with Cress, Cochlearia, and Radishes in a warmed place, green-meat being the best preventive of the diseases of a cold climate, especially of scurvy.

M. DE VILMORIN illustrates his article with a coloured plate, showing a most tempting assortment of Radishes, to the varieties of form and colouring of which he draws attention. The reason for this diversity is to be sought in the fact that many different tastes have to be considered; also the seasons of the year and methods of cultivation necessitate the sowing now of one, now of another kind. The importance of early varieties is obvious if it is considered that to be two or three days in advance is to ensure three crops instead of four from the same beds made up for winter forcing; and to receive the payment for many dishes of Radishes some few days sooner.

In kitchen, as in market-gardening, time is money; and variety, always sought after, is obtained by sowing seed of kinds of varying forms of colour and degrees of precocity, according to custom and local preference.

Further than this, we may divide Radishes suited for private cultivation from the market-garden varieties. These latter must yield quickly, be of uniform quality, of good appearance, which can be at once put on the market, leaving the ground free for another crop, or for a second sowing of the same vegetable. It matters little if these market varieties have a tendency to become flabby when past their prime, as they are always drawn, bunched, and sold, before this can happen.

In private gardens the gardener sows, like the wholesale grower, very frequently. He will plant a quarter of the bed at a time, and expect to cull daily 100 Radishes for at least eight or ten days; therefore, he might choose a variety of rather slower growth maybe, but firmer, and not apt to get weak and flabby. In daily selecting the largest roots he leaves room for the others, and for some time obtains, without further labour, a continuous and uniform yield. Among these comparatively hardy outdoor Radishes there must be, to satisfy different tastes, round and long shapes and diversely-coloured roots, so this gives rise to the introduction of many market-garden and other sorts, there being more than twenty varieties quite distinct, and generally characterised by some descriptive name.

The origin of the cultivated Radish is not exactly known. A hypothesis often offered, notably by M. E. A. CARRIÈRE, that the plant is derived from *Raphanus raphanistrum*, can hardly be successfully maintained. Two serious objections may be raised: firstly, the jointed pod in *R. raphanistrum* and the pod without partitions in cultivated Radishes; secondly, the always white or pinkish flower of the latter, while in the wild plant the bloom is often yellow. Judging by a physiological characteristic, as the cultivated Radishes resist cold less well than the wild variety, we may infer that the former has a more southerly origin.

The analogy in the structure of the leaves, of the pods, and in the appearance of the seed, gives some colour to the idea that cultivated Radishes, as well as the oil-bearing variety of Madras, and the Mougri de Java or serpent Radish, are derived from an Indian species now perhaps extinct.

Whatever may have been the origin of the annual Radish, there is ground for supposing that the root was at first red or violet, as these colours are still the most predominant; the white and yellow forms might be derived from either of these colours.

Until the beginning of the present century, the round, red, and white Radishes, with some

very long kinds, were almost the only varieties in use. These sorts are comparatively leafy, develop rather slowly, but have the compensating advantage of keeping crisp longer.

In the same category a rather recent race may be included: the round *sang de bœuf* Radish, intensely red, with firm crisp flesh, growing well in ordinary soil, and during the summer months.

With this may be classed the extra-early round yellow Radish. As regards use and cultural requirements, these sorts are akin to the semi-long red, white, and scarlet Radishes. All these three develop in a month, but keep well; the two former are olive shaped, the latter longer and more pointed than are the early semi-long scarlet Radishes. All the above varieties M. VILMORIN classes together as the old or original forms.

Another range, which may be called modern, includes earlier, better and choicer sorts, which are, however, more exacting as to soil and attention. These very tender and delicate Radishes like good soil, and require frequent watering. They are as well suited for market-gardens as for private grounds if well looked after, and are in every way the best and most widely known.

Among the round varieties of this class, the Early Round Rose, the Round Rose, with a white tip, are admirable for colouring, rapid growth, and tenderness; even if as large as a small Walnut, the little Early Round White, which is slightly flattened, has very delicate flesh and small foliage, often brown in the centre; the Round Early Scarlet is peculiar for its roundness and bright colouring; the Round Early Violet and its variety, with a white tip, are equally good, and introduce an acceptable diversity in colouring. Semi-long sorts are rather less numerous, and may be reduced to four, or perhaps five, kinds, as one series is subdivided to distinguish the semi-long Rose White-tipped Radish. In fact, horticulturists trace two distinct origins: Radishes from the one are clear rose-coloured, and of an elongated olive form—these are of the Southern race; others, rounder and deeper red in colour, belong to the "Chevreuse" kind, and are these most commonly seen in France. The very long shape is not peculiar to these species, but is in a way the result of a method of cultivation of which the Parisian market-growers know the secret. The semi-long, scarlet, white-tipped Radishes are also very popular, and notable for brilliancy of colouring. The semi-long early-scarlet has an olive-shaped root, coloured down to the tip, and is probably the most scarlet of all Radishes; it is very early and attractive in appearance. Then there is the semi-long, violet, white-tipped Radish, very pretty and charming, and only needing to be more widely known to be generally used.

The last series, which may be called that of *fin de siècle* Radishes, takes the first place for earliness. It includes extra-early varieties with small foliage, just sufficient to nourish the roots and to enable them to be bunched, an important economic consideration. In some of these forcing varieties, the root is ready when the second leaf after the cotyledons or seed-leaves is not fully developed. Under favourable circumstances these extra-early Radishes are ready about a fortnight after sowing. Among these sorts, valuable for forcing, or even for open-air cultivation in suitable seasons, are included the round Rose forcing Radish, the round Rose white-tipped forcing Radish, the round Scarlet white-tipped forcing Radish, and

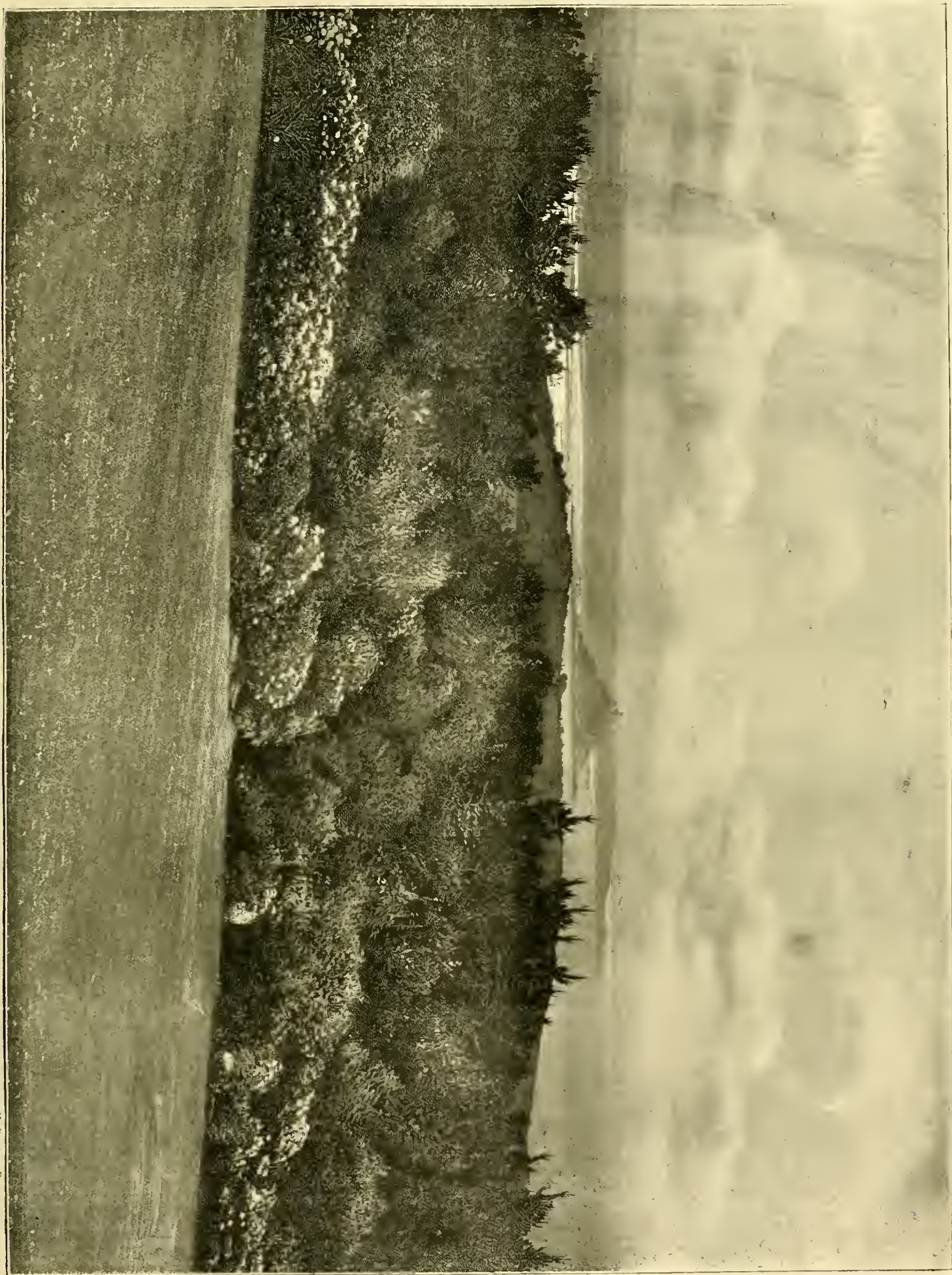


FIG. 111.—VIEW IN THE GROUNDS, CARNE, PENZANCE, THE RESIDENCE OF F. ST. JOHN TUPPER ESQ., WITH ST. MICHAEL'S MOUNT IN THE DISTANCE. (SEE P. 293.)

Engraving by J. H. Preston, Penzance.



the round early Scarlet. Long-rooted kinds are the semi-long White forcing, olive-shaped with small foliage; semi-long White, tipped rose; and semi-long white-tipped Scarlet, which are varieties of the sorts in the second category, but of more rapid growth and with less foliage.

Then there is the uncommon sort, not to be exactly classed with any of the others, the Leafless Red, forcing Radish. This is a great curiosity, with but one leaf, wrinkled, and between the two well-developed and persistent cotyledons. The root is slightly elongated, or nearly spherical, and attains an average size. The round Scarlet and the forcing semi-long Scarlet yield as rapidly and surely a crop equivalent in appearance and quality.

We have quoted this long description, although our readers would the better understand it had they reference to the pretty plate in the *Revue Horticole*, or had they seen the collection that was brought from Chiswick. In any case, they will gather from what has been said, that among these early Radishes there is sufficient variety to please all tastes; that the distinctions between them are not great; the methods of cultivating them differ little, except that there are modifications for the market-gardener who grows on a large scale, and for the private grower. For the latter, all the varieties named are available; and if, instead of planting one kind only, he will vary them, he will obtain an agreeable diversity, not merely of shapes and colouring, but of flavour, which it will be additional interest to comment upon, and to compare one with another. As it is, it cannot be said that our Radishes, as generally met with, compare at all favourably with those we see in France.

ROYAL HORTICULTURAL SOCIETY: THE TEMPLE SHOW, MAY 25, 26, AND 27.—For the eleventh year in succession, the Royal Horticultural Society will hold their great annual flower-show in the Inner Temple Gardens on May 25, 26, and 27. Every year the desire of growers to exhibit increases, and the officials of the Society have a very anxious task in endeavouring to do justice to those growers who support the fortnightly shows of the Society held at the Drill Hall, and yet at the same time to encourage others also to come forward. The space is absolutely limited by agreement with the Temple authorities, and no more or larger tents may be erected. Hence, every new exhibitor whose entry is accepted, means curtailment of the space allotted to previous supporters. A catalogue of the show will be given gratis to every visitor, and will contain a notice of new and rare plants entered on or before May 19. It will also contain a programme of the music to be performed each day. On the first two days the band of H.M.'s 2nd Life Guards, and on the 3rd day the band of H.M.'s Royal Horse Guards will perform. The judges will meet at the Secretary's tent at 10.30 A.M., on May 25, at which hour punctually the tents will be cleared of all exhibitors and their assistants. The Fruit, Floral, and Orchid Committees will assemble at the Secretary's tent at 11 A.M. sharp, and the show will be opened at 12.30 P.M. All plants for Certificates must be entered on or before Monday, May 23. Address: Secretary, Royal Horticultural Society, 117, Victoria Street, S.W. They cannot be entered under any circumstances on the day of the show.

—A correspondent, residing near Preston, sends the following: "Members of the Preston and Fulwood Horticultural Society are forming a party to visit London during the show week. Mr. FRAME, of Fishergate, Preston, the courteous tourist's conductor, has charge of the arrangements, and will conduct parties wishing to see the sights of London. The train starts on Tuesday night, May 24, leaving Windermere at 9 o'clock, Kendal 9.18, Oxenholme

9.27, Carnforth 9.55, Lancaster 10.7, and Preston 11.51. There will also be trains on the branch lines from the Fylde district to Preston. It is expected that a number of gardeners from Liverpool will join the train at Wigan, who will be accommodated with saloon carriages if timely application be made. Further information may be had from Mr. FRAME or Mr. C. PARKER, secretary of the Preston and Fulwood Horticultural Society, 11, Cannon Street, Preston.

"KEW BULLETIN."—No. 132, December, 1897, has just been issued. Its contents are of unusual interest, comprising extracts from letters of Dr. HENRY from Yunnan, in which he urges the despatch of a botanist to Szechwan and the neighbourhood. The flora is very rich, extremely interesting, and contains many plants which would be suitable for introduction here. Perhaps the Royal Horticultural Society, having fallen on better days, might be induced to assist, and renew its old glories. The introduction of *Ficus elastica* into Egypt promises to be a matter of importance as a source of rubber. The great demand for the timber of white Willow—for cricket-bats!—will give rise to much thought on the part of practical men, as well as of philosophers! The fate of the pelican is detailed, but the conduct of the gamekeeper was so abominable, that it is to be hoped he will be deprived of his gun forthwith.

ROSE FIXTURES IN 1898.—The following additional fixtures occur during June and July:—June 16 (Thursday), Isle of Wight (Carisbrook); June 23 (Thursday), Ryde; June 28 (Tuesday), Leeds; July 6 (Wednesday), Chelmsford, Ealing, Hitchin; July 13 (Wednesday), Maidstone; July 14 (Thursday), Brentwood; July 16 (Saturday), New Brighton; July 28 (Thursday), Bedale. The next list of fixtures will appear early in June. In the meantime, Mr. EDWARD MAWLEY, Rosebank, Berkhamsted, Herts, will be glad to receive the dates of any Rose shows (or other horticultural exhibitions where Roses form a leading feature) for insertion in that list.

GHENT EXHIBITION.—The system of recording the decisions of the jury followed at this marvellous exhibition deserves to be noted. The jury was divided into thirty-nine sections, and each section elected its own chairman. Moreover, each section was attended by a steward, one of the pupils of the School of Horticulture, who pointed out to the jury where and what were the objects to be adjudicated upon; and by a boy messenger from an orphan school, to whose smartness we have already borne testimony. A note-book with perforated leaves was given to the chairman, on each page of which was printed the number of the competing class, its nature, the awards to be allotted at the discretion of the jury, and the number of competitors, but of course not their names. As soon as the jury had come to a decision in any one class, the chairman registered the result in his note-book, signed it, tore the leaf out, and gave it to the messenger, who hurried off with it to the central office, and returned immediately. In this way mistake was almost impossible, the system worked smoothly, and the judging was accomplished speedily and decisively. We remember in former years at continental shows that the judging was a very lengthy business, partly because the judges occupied their time in gossiping rather than in their proper duties; but on this occasion the judging was done as promptly and efficiently as in England.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held on Monday, May 16, 1898, when a paper will be read by Mr. H. T. EVE (Fellow), entitled "Compensation Values of Cattle Foods—Chemist v. Valuer." The chair will be taken at 8 o'clock.

"HOME GARDENING."—This "manual for the amateur" by W. D. DRURY, and published by L. URCOTT GILL, 170, Strand, adds yet another to the innumerable small cheap handbooks on gardening

which are already before the public. The author considers that an excuse for issuing his manual is that, in spite of the plentiful literature just referred to, "strange to say, the absolute novice has not been so well catered for." Whether this is the case or not, and whether amateurs will appreciate this special work prepared for them, remains to be proved. It is enough to say that common-sense advice is plainly given as to the ways of cultivating flowers, fruit, and vegetables, and if the novice fails in spite of them, it will not be the fault of his instructor. The book contains a few illustrations, and has a gay-coloured cover.

MISSOURI BOTANICAL GARDEN.—We have received the ninth Annual Report, to March, 1893, of the Missouri Botanical Garden, sent out by the Director, Mr. W. TRELEASE. It is a highly satisfactory account, comprising a record of various additions to the herbarium, library, and garden. The scientific papers included in the volume are:—"Revision of the American Lemnaceae occurring North of Mexico," C. H. THOMPSON; "Notes on *Salix longipes*, Shuttlw., and its relations to *S. nigra*, Marsh, N. M. GLATFELTER, M.D.; "Revision of the genus *Capsicum*, with especial reference to Garden Varieties" (an elaborate monograph, to which we shall refer again), H. C. IRISH; "List of Cryptogams collected in the Bahamas, Jamaica, and Grand Cayman," A. S. HIRSCOCK; "Agave Washingtonensis and other Agaves flowering in the Washington Botanic Garden in 1897," J. N. ROSE; "Species of Cacti commonly cultivated under the Generic name, *Anhalonium*," C. H. THOMPSON; "Miscellaneous Observations on *Yucca*," W. TRELEASE; and other similar articles. The plates illustrating the papers are effective.

HORTICULTURAL CLUB.—The usual monthly dinner was held on Tuesday last, when the chair was occupied by the President, Sir JOHN T. D. LLEWELYN, M.P. Over fifty members and their friends were present, this large number being drawn together to do honour to the valued and respected founder and Hon. Secretary of the Club (Rev. H. D'OMBRAIN), who had that day attained to the ripe age of 80 years, and it had been determined by the members to in some way recognise his long and justly-appreciated services. This intention of the members was admirably carried out by Mr. HARRY J. VEITCH and Mr. GEO. MONRO. During the evening the Chairman, amidst cheers, and in felicitous terms, asked Mr. D'OMBRAIN's acceptance of a cheque for £63, representing a subscription of £1 ls. each—the maximum amount asked for—from sixty members of the Club, together with a purse, the gift of a lady whose name was not disclosed, as a small token of esteem, and with a sincere and hearty good wish from every member on the celebration of his 80th birthday. Mr. D'OMBRAIN with much emotion feelingly acknowledged the, to him, quite unexpected gift. Words failed him (he said) to express what he felt at the action of his kind friends in thus honouring him, and he could only say that it had given him great pleasure to be of service to the club. He had during his secretaryship formed many dear friendships, which he deeply valued, and in sincerely thanking them for their kindness, asked that they would all accept, what he termed, "an old man's blessing." Mr. MARTIN R. SMITH offered to have the circumstances of the presentation together with the names of the members inscribed on vellum, and presented to Mr. D'OMBRAIN in the name of the club, which offer, needless to say, was warmly accepted. Letters from Dr. MASTERS, and others, regretting their inability to be present, were read by Mr. GEORGE MONRO, who also expressed his personal regret, which was shared in by the whole company, at the absence of their vice-chairman (Mr. HARRY J. VEITCH) through illness. Sir JOHN LLEWELYN being compelled to leave at an early hour on account of his parliamentary duties, vacated the chair in favour of Mr. N. SHERWOOD.

ORCHIDS AT MOORTEBEEK.—M. L. LINDEN writes to us from Brussels to the following effect:—"Certainly the air and the situation play a considerable

part in the cultivation of *Odontoglossum*, and more particularly of *Cattleya*. But this is not all; it is necessary beyond everything else that the plant become properly established. Ill-established, badly cultivated at the beginning they will never thrive. The two first years of cultivation decide the future of the plants, just as early education does that of the man. It has been said that Orchids degenerate in Europe. To my mind the plants have been only badly established. If the air is an important factor, the construction of the house and ability to profit by that air, repotting and watering are other highly important points. At Moortebeek we use rain-water only. The air of Moortebeek is excellent; certainly the best that I know in the environs of Brussels, but I believe that badly-cultivated plants would succeed no better there than elsewhere, for I have proof of it not far from my own doors. I know in the suburbs of London many places which rival Moortebeek, and I am positive that I could succeed in cultivating *Odontoglossum* and *Cattleya* equally well there. I am so fond of England that I am often tempted to make the attempt (*quien sabe?*), unless there are too many successful English growers. [There are many localities we could indicate, but, on the whole, we think M. LINDEN had better stay where he is! Ed.]

STOCKTAKING: APRIL.—Actual war and political entanglements continue to play sad havoc with trade, both as to supply and prices. As noted in the Board of Trade returns for April, the imports amount to £40,246,716, as against £35,136,555—for the same period last year—or an increase of £5,110,161, or 14½ per cent. This great increase may be divided between food supplies and materials for the manufacture of textile fabrics, but it may be noted that the heavy supplies of wool and cotton are compared with very low ones for April, 1897. The following is our usual excerpt from the "summary" table of imports for April:—

IMPORTS.	1897.	1898.	Difference.
	£	£	£
Total value ...	35,136,555	40,246,716	+ 5,110,161
(A.) Articles of food and drink—duty free ...	11,752,101	14,252,300	+ 2,500,199
(B.) Articles of food and drink—dutiable	2,116,859	1,899,372	—217,487
Raw materials for textile manufactures ...	5,304,501	7,610,695	+ 2,306,194
Raw materials for sundry industries and manufactures	3,307,117	3,441,017	+ 133,900
(A.) Miscellaneous articles ...	1,038,029	1,174,175	+ 136,146
(B.) Parcel Post ..	73,141	99,117	+ 25,976

The imports for the four months just finished amount in value to £159,317,623, against £152,764,781 for the same period in 1897—an increase of £6,552,842. Our usual piece of "relief" will be found in the figures relating to the imports of fruit, roots, and vegetables for the past month:—

IMPORTS.	1897.	1898.	Difference.
Fruits, raw:—			
Apples ... ..bush	336,344	167,121	—169,223
Cherries"	331	...	—331
Plums"	...	1	+1
Pears"	1,380	1,355	—25
Grapes"	2,012	2,259	+ 247
Unenumerated"	56,019	63,760	+ 7,741
Onions"	637,217	613,633	—23,584
Potatoes ... ..cwt.	86,167	1,188,653	+ 1,100,486
Vegetables, raw, unenumerated ... ..value	£135,240	£131,952	—£3,288

The "plus" in the matter of Potatoes in the above excerpt is the most notable of the series. We come now to the always interesting section devoted to—

EXPORTS,

and here, too, we find the depressing influences of war telling against our foreign trade. The figures for the past month are £17,496,011, against £19,700,122 for April, 1897—a decrease of £2,204,111.

Machinery and millwork show an increase of some £68,255, but in most other sections a decrease is reported—yarns and textile fabrics accounting for £1,280,262 of the decrease. The exports for the four months of the present year amount to £75,203,129, against £78,998,309—a decrease of £3,795,180. In this decrease yarns and textiles figure for £1,804,209; machinery and millwork, £708,256; metals and articles manufactured therefrom, except machinery, £475,153; and a decrease in the value of articles of food and drink, amounting to £269,292, has to be placed to the four months' credit.

PUBLICATIONS RECEIVED.—*The American Florist*, Chicago and New York. — *Gardening*, Chicago. — *The Weekly Florists' Review*, Chicago and New York. — *The Florists' Exchange*, New York. — *American Gardening*, New York. — *Mechanics' Monthly*, Philadelphia. — *Müller's Deutsche Gärtner-Zeitung*, Erfurt. — *Der Gärtner und Blumenhändler*, Berlin. — *Gartenflora*, Berlin. — *Die Natürlichen Pflanzenfamilien*, Leipzig. — *Botanische Zeitung*, Leipzig. — *Botanisches Centralblatt*, Nos. 17, 18, 1898. — *Genschels Allgemeine Gärtner Börse*, April 24. — *Dictionnaire Pratique d'Horticulture*, 69th livraison. — *Annales Agronomiques*, April 25. — *Le Moniteur d'Horticulture*, April 25. — *Pharmaceutical Archives*, edited by Edward Kremers (Pharmaceutical Review Publishing Co., Milwaukee, Wis.), contains: Chemical bibliography of morphine, H. E. Browne; *Veratrum viride*, Ait., and *V. album*, L. R. H. Denniston; and Medicinal Plants of Brazil, Dr. Theodor Peckolt. — *Tijdschrift voor Tuinbouw*, end of redactie van Dr. H. Bos, A. Ide, Ernst H. Krelage, B. A. Plempner, Van Balen, en Leonard A. Springer (Groningen). — From the New York Agricultural Experiment Station come the following Bulletins:—No. 136, *Inspection of nurseries and treatment of infested nursery stock*, V. H. Lowe. No. 137, *Commercial fertilisers for Potatoes*, W. H. Jordau. No. 138, *Experiments and observations on some diseases of plants*. 1, Ploughing under green Rye to prevent Potato scab; 2, The communicability of Potato stem-blight; 3, Effects of common salt on the growth of Carnations and Carnation rust, F. C. Stewart. — No. 139, *Plant lice: descriptions, enemies and treatment*, V. H. Lowe. No. 140, *Wood-ashes and Apple scab*, T. A. Beach. No. 141, *Digestion and feeding experiments*. 1, The new Corn Product; 2, The calculation of the value of rations, W. H. Jordan, and C. G. Jenter. No. 142, *Director's Report for 1897*, W. H. Jordan.

CARNE, NEAR PENZANCE.

THE RESIDENCE OF F. ST. JOHN TUPPER, Esq.
[SEE SUPPLEMENTARY ILLUSTRATION.]

CARNE consists of a simply-built house pleasantly overgrown with Ivy, Escallonias, and other evergreen climbers, surrounded by its grounds of fourteen acres, situated on the summit and side of a hill overlooking the town of Penzance. From the house a beautiful view is obtained of Mount's Bay and St. Michael's Mount, and, as the aspect is thus almost due south, the place has great natural advantages for gardening of every description.

The grounds have been laid out with considerable taste. They consist almost entirely of lawns, paths, and shrubberies, the grass being allowed to form graceful bays, and so break the formality of the boundary lines of shrubs. The whole effect is pleasing and moderately reposeful, though the presence of some deciduous forest trees would much improve the appearance of the grounds. The collection of shrubs is fairly extensive, and includes a large number of Hollies and Rhododendrons—many of the latter being in flower on the occasion of my visit in the middle of March.

Very little attempt at flower-gardening has, however, been made. Between the shrubs (which are wisely allowed space for individual development of form) is chiefly bare earth, with the exception of a few clumps of *Romneya*, and an occasional *Pæony* or *Iris*. Spring flowers are almost entirely absent; a few dozen Crocuses planted singly at regular intervals, a few Narcissi, forming a thin line along a shrubby

border (instead of being judiciously planted in natural clumps), a few *Polyanthuses*, and three *Gentianellas*, appear to exhaust the list of spring flowers at Carne.

There are three well-enclosed plots of ground which might be made little paradises of beauty at the cost of a little judgment and effort. The whole place offers singular facilities for the culture of flowers, and now that the more important and tedious part of the work of making the grounds attractive has been done, in the general laying out of the place and the development of the shrubs for eighteen years, it is to be hoped that the new owner of Carne will take advantage of its situation and make it one of Cornwall's most beautiful flower-gardens. *Harry Roberts.*

LETTUCE FORCING.

LETTUCE growing under glass is by far the most extensive of the vegetable forcing industries in this country (United States). It would be interesting to know why it has developed so far ahead of other greenhouse crops—Tomatoes for instance. It is usually supposed that the class of people who eat what they like regardless of cost is quite large in America; and yet it has been the experience of greenhouse managers, generally, that it is possible, in comparatively few cases, to get such prices for forced Tomatoes, Beans, Cauliflowers, &c., as will make them pay. Of course, one has to take into account the production of early vegetables in Florida, and other southern States, whence Beans and Cauliflower can be shipped with comparatively less expense than can Lettuce; but this does not account altogether for the comparative development of the several forcing industries. But Winter Lettuce is a staple crop now, even in small rural towns, where almost no other "green-groceries" are seen for three or four months in the year. In eastern markets, or more particularly in Boston and its vicinity, the demand is for large solid heads of smooth leaves. Boston Market and Big Boston are two varieties which are grown to supply this demand. Such Lettuce is sold by the head, or by the dozen heads, bringing 1 dol. to 1 dol. 50 c. (about 4s. to 7s.) a dozen in the city markets, but selling as low as 50 cents (2s.) a dozen in country markets.

In Chicago and other western cities Lettuce is sold by the pound, and varieties of a very different class are grown. The type of western forcing Lettuce is the Grand Rapids, which grows erect, with light green, very curly leaves, and does not make a head. The Grand Rapids type of varieties is easier to handle under glass, and can be sent sooner to market. It is all a matter of custom as to which is better for table use. The plan of selling by weight is evidently fairest to the buyer, and ought to be perfectly satisfactory to the grower, especially for the non-heading varieties of Lettuce. The plan of selling all sorts of vegetables and fruits by weight is more common in the western States. In the large Denver markets almost everything used to be sold in that way, including eggs and Apples. *F. A. W.* [Our illustration (fig. 112) explains itself, and is a reproduction from a photograph of a house used for vegetable forcing, including Lettuces, Tomatoes, &c.]

HOME CORRESPONDENCE.

GARDENING CHARITIES AND GARDENERS' WAGES.—Your correspondent C. C., at p. 268, of the *Gardeners' Chronicle*, bemoans his inability to contribute to the Gardeners' Orphan Fund and other gardening charities on account of the exceeding smallness of his income. Verily his case is a pitiable one, and it is to be hoped there are not many gardeners in the same or similar circumstances. I have an extensive acquaintanceship amongst gardeners, and know that the majority have incomes very much better, though there are, unfortunately, few cases where the gardeners' profession from the salary point of view, can be called "A happy one." I should like to ask the question, whether it can be said of gardeners generally, as was said of the poor widow in holy writ, they have done what they could towards the gardening charities. The sum required

to secure one vote for the election of children to the Gardeners' Orphan Fund is 5s. per annum, or a fraction less than 1½d. per week. Even your correspondent C. C. with his 21s. 3d. per week clear of rent, could afford this, and never miss it. I believe if he even ventured further, and spent 5d. for the Gardeners' Benevolent Fund, and the balance of 1s. to make himself a member of the Oddfellows' or other Benefit Society, he would not regret it or feel himself the poorer, but would ever with a grateful heart realise that it is "More blessed to give than to receive." Granting that C. C. may find a difficulty in giving to charities, can this be said of the 10,000 gardeners whose names are in the *Horticultural Directory*? Verily, no. Looking over the list of subscribers to the Orphan Fund for 1896 (the latest published), I find there are just over 300 practical gardeners who contribute, and while there are a good many who nobly do what they can, and interest

congregate, do they look poverty stricken? They are well clothed, look well fed, seem in high spirits (except perhaps when they don't get the big prizes they had set their minds on), and even show no lack of pocket-money. It cannot be that gardeners are more hard-hearted than other men; and the only explanation seems that, as a class, they have been too much accustomed to rely on their employers and mayhap the nursery and seed trade, relieving them of their duties in the matter of charities. It is time they awoke from their slumbers, and took the load on their own shoulders. Has it never occurred to gardeners that if, say, nine out of every ten of them in employment subscribed 5s. per annum, and they could easily do that, there would be no need of elections to the fund, but ample means would be available for the decent maintenance of every gardeners' widow and child whom death deprived of their bread-winner. "God helps them that help

well grown, present! Mr. Young sowed the seed in September last in large 60-pots, allowing eight plants to a pot. Later, after these had become strong, each clump was shifted into 24-sized pots, and in the repotting, the outer plants were drawn wider. It was but needful to keep the plants near the glass in a greenhouse temperature all the winter, placing small sticks to the stems as they elongated, and eventually getting them well into bloom at the end of March. When I saw the plants, then in full bloom, they were about 2 feet in height. Whilst a pity indeed to cut from them, yet few flowers cut with long stems could be more light or graceful for placing in vases. There are several varieties of *Schizanthus*, all capital for this form of culture. Very beautiful too are the *Clarkias* and *Gedstias*, indeed, there are many not less charming. If a novelty be wanting just now in greenhouse decoration, and one tire of seeing so much of stereotypic plants, a large collection of autumn-sown annuals grown in pots, should furnish it. Thus would be seen for an original cost of a few shillings, a display of floral beauty that it would with costly plants be difficult to excel. A. D.

A VARIEGATED-LEAVED DENDROBIUM NOBILE.

—We have here a small piece of *Dendrobium nobile* with the foliage prettily variegated, a leaf of which I enclose for you to see. It originated on a plant of *D. nobile* bought about five years ago of the Liverpool Horticultural Co. (as it was then called, now John Cowan & Co.), and this plant was said to be from a new district. Anyhow, when growth commenced that same spring, I noticed a small pseudo-bulb growing quite in the centre of the mass with this variegated foliage; it was a very small growth, only measuring about 4 inches when complete, and each year since the same foliage has been borne by the bulbs, which have increased in size—last season's, the one from which the leaf enclosed came, measuring 14 inches in length. Until this spring the whole mass has been intact, but now the variegated portion has been separated from the rest, and it has a small basket to itself, and the growth it is now making shows the same peculiarity as that previously made. Up to the present date no flowers have been borne, although it is improbable that they would differ from those of an ordinary *D. nobile*, which is only a flower of the usual type. I mentioned this variegated sport to Mr. Cowan this spring, and he writes me that he has never seen a piece like it. *Geo. Ringham, Gardener, Wrotham Park, Barnet.* [The leaf sent by our correspondent is striped creamy-white, the stripes running longitudinally, and the leaf appears to be quite normal in all other respects. ED.]

SPORTIVE CYCLAMEN.—In reply to "A. D."

(p. 286), I may state that a plant with fifty to sixty half-white and half-red flowers, and six or seven flowers or blooms half-red and half-white, and two blooms had only one of its petals red, and the others white, and some of the red ones had white petals. I raised this plant from seed, and I also know there is only one corm in the flower-pot. It is a very striking plant, and no one coming into the house can fail to notice it. *Wm. Smythe, Basing Park Gardens, Alton.*

GRIESELINIA LITTORALIS AND OTHER PLANTS.

—Do you know of *Grieselinia littoralis* flowering in this country? It is doing so with me. Among other interesting plants now in flower or flower-bud, are *Sciadopitys verticillata*, *Xanthoceras sorbifolia*, now expanding its flowers in the greatest possible profusion; *Fabiana*, also promising a profusion of flower, Japanese Maples, *Oreodaphne*, and Himalayan *Rhododendrons*, *R. arboreum*, and *R. Thomsoni*. These have been all standing out-of-doors for several years without any protection, except in the case of the *Rhododendrons*, which had a very slight covering during the severe frost of last year's winter. Indeed, they seem to suffer more from hot dry summers than from cold winters. To the above list I might have added *Rhododendron ciliatum* and a *Rhododendron* sent out by Veitch under the name of *R. racemosum*, both unprotected. *G. J. Allman, Parkstone, Dorset.*

HARDY PLANTS FOR FURNISHING FLOWERS FOR CUTTING.—Although Mr. E. Jenkins is very

emphatic in his condemnation of the planting of Daffodil bulbs and those of bulbous Irises during the months of January, February, and March, under the conditions mentioned by me at p. 205, he has not adduced facts which in the past go to weaken the opinion which I expressed there on the subject. I must remind Mr. Jenkins once more, that when I penned my original article on this subject (see p. 205, four lines

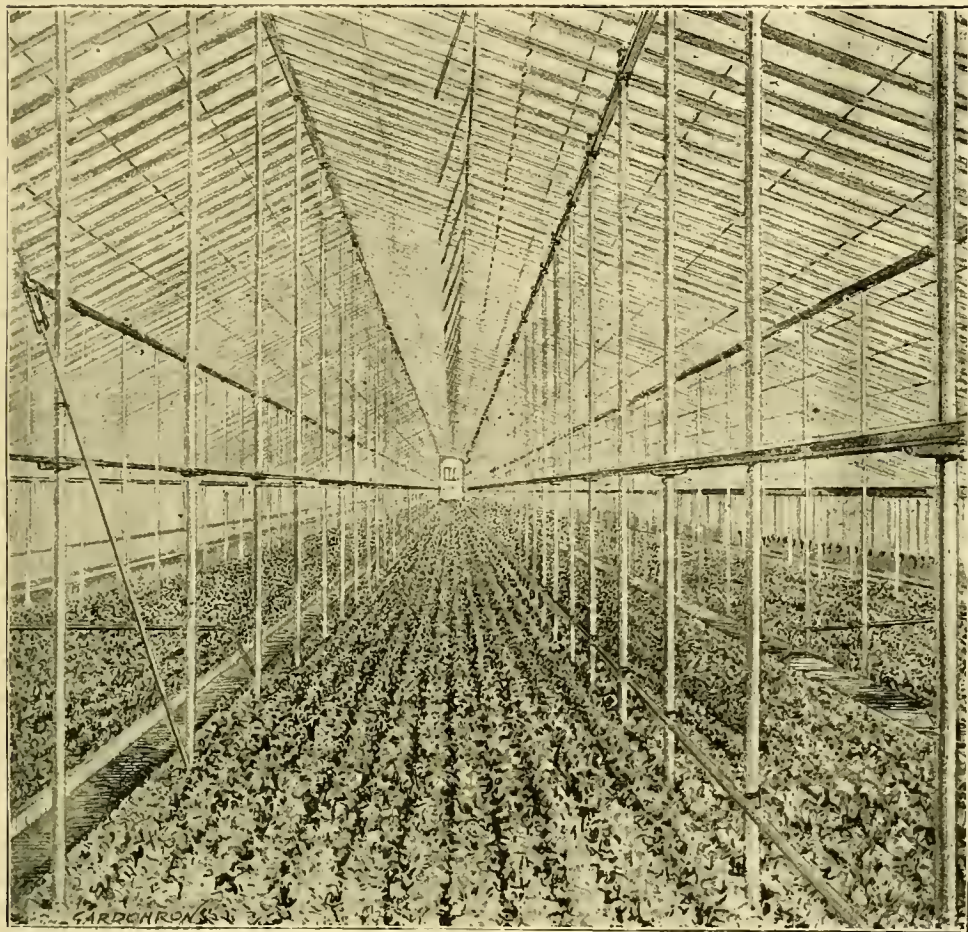


FIG. 112.—A BOSTON LETTUCE-FORCING HOUSE. (SEE P. 298.)

themselves in the welfare of the fund, one cannot help being amazed at the small number who subscribe, and ask whether it is carelessness or callousness that is the reason why such a praiseworthy fund is supported by the merest fraction of the profession. Scanning the list more narrowly, I find that only thirteen gardeners in Scotland subscribed for 1896, and still fewer in Ireland. Now there are eight children resident in Scotland receiving the benefits of the Orphan Fund to the extent of £104 per annum. But for the very handsome support given by and through the Scottish Horticultural Association, and by one or two gardeners whom it might be invidious to name, the subscriptions from Scotland seem in inverse ratio to the amount received, and bears out the character of Scotsmen given by a humorous satirist when he describes "Sandy" as "a decent man who keeps the Sabbath and everything else he can lay hands on." There must be some other reason for gardeners not subscribing than poverty. When seen at flower-shows and other places where gardeners

themselves," and if the gardeners of Britain would rouse themselves, shake off their apathy, and quit them like men, the outside assistance of employers of gardeners, the nursery trade (who already give nobly), and others interested in gardening, would be cheerfully added to their own efforts, and very soon in the homes of the widow and fatherless, the aged and the infirm, want would be unknown. *Subscriber.*

SPRING-FLOWERING POT ANNUALS.—Recently

invited by Mr. Young, gardener to Mrs. Pearson, on Kingston Hill, to see some remarkably fine and superbly flowered *Gloxinias* of the Chelsea strain which he has, I was not less pleased with the inspection of numerous pots of *Schizanthus pinnatus* which I saw in one of the houses, and which were really charming. It was not possible on seeing these annuals to do other than wish that these and many others, not less beautiful, might be similarly grown for greenhouse decoration. What a wealth of beauty would such a collection, if

from top), "I had in my mind bulbs planted in the autumn." And I also beg to assure him, that I still assert that "There is no practical reason why people who may come to the conclusion in January, February, early in March, or, for that matter, as late in spring, if good, dry bulbs of the Daffodil and Iris are then obtainable, that they would like to plant a given space with these popular bulbous plants, should not forthwith do so." "To this," writes Mr. Jenkins at p. 236, "I can only say there is every reason possible;" adding, "for if such bulbs were planted 3 inches deep in February or March, the chances are that 90 per cent. would never raise themselves that year more than the same number of inches above the soil." He then asks, "With such as these, where does Mr. Ward get his new bulb and flower-germ for flowering another year?" By way of answering this question, I will ask Mr. Jenkins if he is aware that thousands of forced bulbs of Daffodils, Hyacinths, Tulips, &c., are transplanted out of the pots into borders and beds every spring—often as late as May—in private gardens, where, as a rule, they flourish and yield abundance of flowers every year; improving in floriferousness and substance the second year from time of planting, after the bulbs have had time to recover from the rough ordeal which they were subjected to in the process of forcing, and to establish themselves in their new quarters? And, if so, how he reconciles this fact with his own *dictum*? Again, I may mention—by way of convincing Mr. Jenkins of error and unjust remarks he has made in criticizing practical facts—the thousands of Daffodils which are yearly transplanted from Daffodil woods on private places to desirable sites on other parts of the estate in May, and sometimes later in the season, and which bulbs live and flourish to such an extent in their new home as to become a veritable carpet of gold every succeeding spring in the course of a few years. These facts speak for themselves, and at the same time afford a conclusive and indisputable answer to Mr. Jenkins' question in reference to spring-planted Daffodils—"And with such as these, where does Mr. Ward get his new bulb and flower-germ for flowering another year?" Time after time have I made transplantations of the above-mentioned bulbs, and with the results indicated; planting the forced bulbs in holes made 3 or 4 inches deep with the setting-stick, and the Daffodils in holes about the same depth, made with a crowbar, pretty closely together, or rather closely together in clumps, at irregular intervals among the trees in the "home-woods" and grounds, filling up the holes with fine soil where the latter was not loose enough in the planting ground to get washed into the holes with rain. Mr. Jenkins says, "Mr. Ward urges that I must know that thousands of Daffodil bulbs are advertised and sold in January and February;" adding, "True; but who are the buyers? Certainly not practical gardeners or bulb specialists." How does Mr. Jenkins support this assertion, seeing that the said bulbs are largely advertised in trade journals during the months named? I suppose Mr. Jenkins will admit that the trade is composed of practical men and bulb specialists? Your correspondent refers to a bulb sale that he attended in February last, and at which Von Sion Daffodils were put up in cheap lots, some of which, he avers, were not sold, notwithstanding the fact of "at least half-a-dozen Daffodil-growers and specialists" were included in the number of people present. However, I fail to see that this indisposition on the part of six growers and specialists to buy the said bulbs can be accepted as evidence in support of Mr. Jenkins' defence, for the best of all reasons, that in all probability they did not go to the sale to buy bulbs of this kind, and which they evidently did not require. Mr. Jenkins' remarks, "Here was a lost opportunity, for Mr. Ward could have had at least 2000 or 3000 for the taking away." Well, it may interest Mr. Jenkins to know that the middle of February last I planted 4000 double Daffodils in my garden, and a lesser number of Spanish Irises. I have cut several blooms of the former with stems 8 to 9 inches in length, and the foliage of most of them is from 7 to 9 inches high. And I look forward with certainty to these same February-planted bulbs becoming stronger, and consequently more floriferous, each succeeding spring; and, moreover, I feel confident that these bulbs will yield better floriferous results in the spring of 1899 than bulbs of the same size and quality planted next autumn will produce. Sound dry bulbs, when brought in contact with mother earth, of medium texture and fair fertility, during any of the months of January, February, or March, speedily push into root and leaf-growth, and, in a measure, make up for lost time. I need not go into the reason which

induced me to buy and plant the bulbs mentioned above in February, further than to say I consider the bulbs offered were a good bargain, and I was certain that they would grow and flower all right in due time. I do not think Mr. Jenkins would wilfully misrepresent my words, or accuse me of "trying to evade the point at issue," which, however, he does at p. 236 (*re* Francoa "growing and flowering freely when sheltered from north and east winds"), by saying I originally recommended this plant for field-culture, and quite unconditionally. If he will refer to the concluding lines of the third paragraph of my original article, p. 156, he will be convinced of the error he has made in accusing me of "trying to evade the point at issue." In recommending that new plantations of the kinds of hardy perennials mentioned in that paragraph (including the Francoa) be made in light rather than heavy soil of average fertility and depth, I added, "and, if possible, in situations which are sheltered from the north and east winds." I have never "tried to evade the point at issue" in any controversial matter I have been engaged in, but I have sometimes had difficulty in keeping my opponent to the "point at issue." *H. W. Ward, Rayleigh.*

THE FRUIT PROSPECTS.—The blossoms of the Apple, Pear, Cherry, and Plum are very promising. The recent frosts touched a few of the most forward and exposed blooms on some of the Pear-trees, but more than sufficient is left. The trees appear to be doing their duty, and if the climatic conditions of the season are favourable, the painstaking orchardist will have good fruit crops. Apricots, I fear, will be thin. The blossom was everything that could be desired up to the morning of March 10, when 12° of frost killed the greater part. So grand a fruit as the Apricot ought to be given glass protection. I often wonder how it has, for so long, been left out in the cold, whilst so much care is bestowed on the Peach and Nectarine, which in the opinion of some are inferior fruit to that of the Apricot. *W. Miller, Combe Abbey, April 25.*

—So far, the season is all that could be desired in these parts, and there are prospects of a beautiful fruit harvest. If our friend John Frost will only forego his usual late visit, a record season may be expected. Vegetable crops have benefited by the helpful rains, and with warm sunshine we may hope to closely follow our southern brethren, who will shortly be telling us that they are gathering Strawberries, pulling Peas, and digging Potatoes on warm borders, and other nice things. We do not envy them, unless perhaps when they are penning their notes we have registered our 10° or 12° of frost. Imagine our feelings as we cut our Cabbages and pull our Peas, perhaps a month or six weeks late. Unlike the Pharisees of old, thankful that we are not as other men, we are inclined to ask, "why" are we not as other men? *Arthur Smith, Eden Hall Gardens, Langwathby, May 4.*

PROTECTING PEACH-TREES IN BLOOM.—Seeing that ninety gardeners out of every hundred, at least, recognize and act upon the belief that some protection to the bloom of Peach, Nectarine, Apricot, and similar wall-fruits is needful and beneficial, Mr. Carmichael has shown great boldness in venturing to denounce the practice so strongly as he has recently done. But when it is charged against the practice that it keeps the bees from the blossoms, it should be understood that that objection fails where, as is so commonly the case, the covering remains over the trees in the night only, and is rolled up or removed during the day. But after all it is a case of experience. What are the experiences of the many who do give protection as against the few who give none? Not that it necessarily follows the many may be right, because practice in gardening is often of the rule-of-thumb order, but when the large majority do act in a certain way, there seems to be strong reason to believe that they must have good reasons for taking such course. What harm is done to wall-tree bloom is undoubtedly the result, chiefly, of night frosts, and these are sometimes so severe that Frigi Domo, tiffany, or scrim-canvas offer very little protection. In such case probably the chief service rendered may be to intercept the falling moisture or dew, and thus help to keep the blossoms dryer than otherwise would be the case. But then again there is the fact that moisture at night comes largely from the soil, and if the covering over the Peach-trees, usually at the bottom drawn out some 3 feet from the wall, checks the settling of moisture on the bloom externally, it bottles-in such moisture as emanates from the soil beneath the covering, and prevents its free dispersal

in the air, so that the check to external moisture may not be all gain. It seems late in the day to open a question of this nature now, but it does not follow any the more that our covering or protecting practice has always been right. No doubt there is now ample experience to set the matter at rest if gardeners will only freely give it. *A. D.*

EICHORNIA SPECIOSA, better known under the name of *Pontederia crassipes*, has for many years occupied a prominent position in the tank of the tropical aquatic-house in the Oxford Botanic Gardens. It has always been a shy bloomer here and on each occasion of its flowering it has invariably been towards the end of the summer. This would lead one to think that exposure to sunlight was a determining factor in the production of its flowers. But this year the order has been reversed, for during the past week it has produced a scape bearing several of its lovely clear rosy-lilac flowers, the upper and largest segment of each being suffused in the middle with rosy-purple, with linear markings of violet, in the centre of which is displayed a conspicuous oval blotch of pale chrome-yellow. It is a very attractive and pleasing plant when in bloom, but unfortunately the flowers are very evanescent. It is figured under the name of *Pontederia azurea* in the *Botanical Magazine*, vol. 56, pl. 2932, but justice is scarcely done to the prettiness of the coloration of the flowers. *W. G. B.*

CYTISUS ANDREANUS ×.—I am sending, and should like your opinion concerning some seedling *Cytisus scoparius Andreanus* crossed with *C. praecox*. The *Andreanus* coloured one is of capital habit and a good grower, and is apparently much earlier than *C. Andreanus* (at least, my one plant of *Andreanus* has not a bloom open yet), as to flowering, it is close after *C. praecox* with me. Of the three—all seedlings from the same cross—one is quite upright. None is so early as the *Andreanus* coloured one. The seedlings are growing out of doors, and are two years old. I think the coloured one should be of value on account of its early blooming. *T. Geeson.* [We do not see in the specimens sent any evidence of a cross with *praecox*. The third upright form is a different species altogether.]

CENTRAL AFRICAN COTTON.—According to a paragraph in the *Gardeners' Chronicle*, an entirely new species of Cotton plant has been discovered in Central Africa, which has caused an uncommon amount of interest. Five years ago, Adolf Kyle, an Englishman, saw in the Congo territory, 1,600 kilometres distant from the banks of the river, in a wooded region, a group of Cotton-bushes of a height of 6 metres. Kyle gave some of the seed-vessels to an American farmer. Can the editor say where this farmer now resides, and if I can obtain seeds of the plant, or what would be the price of a cwt. of seed, or tell me where Adolf Kyle is now residing? Also can he inform me, in case I should send to the Congo country, how I could obtain seeds of this plant? *Karl Dignowitz, Bobergasse 2, Sagan.* [We do not think it at all likely that the plant in question is a true Cotton, *Gossypium*. There are many frutescent or arborescent Malvaceae in tropical Africa which produce cottony seeds, but none of any special value. *Ed.*]

Obituary.

A. SIMPSON.—The decease of this well-known citizen of York occurred on the 4th inst. Mr. Simpson was head of the firm of Messrs. A. Simpson & Sons of the Heworth Nurseries, and held a prominent position amongst the nurserymen of the county. He was associated with the Ancient Society of York Florists, by whom and a by wide circle of acquaintances he was very highly respected. His connection with the Society extended from the year 1868, and during a great part of the time he was a member of the committee. He filled the office of steward three years, and in 1894 occupied the position of chairman of the executive, during one of the most successful financial years in the society's history. He had been a prominent member at the York Chrysanthemum show since its beginning, having had charge of the arrangements for the vegetable exhibits—no very light duty, as those know well who are aware what a quantity of vegetables are usually shown. He was of robust physique, and was seldom ill. His death was scarcely antici-

pated, and his illness but of short duration, a paralytic seizure being the immediate cause of death. The interment took place on the 7th inst., at York Cemetery, and was preceded by a service at St. Thomas' church. Many of the deceased's colleagues were present, and the chaplain of the Ancient Society of York Florists (Rev. H. Vyvyan) assisted in the service. Deceased was in his sixty-eighth year, and leaves three sons and two daughters. *J. L.*

MR. JOHN WEIR.—We have received a private intimation of the death, on the 28th ult., of this old servant of the Royal Horticultural Society. Few persons, we believe, were aware of his existence, for his name appeared long ago in Britten & Boulger's *Biographical Index* of deceased botanists, though, of course, no date could be assigned to the event. His life has been a sad one indeed, and, happily, almost without parallel. John Weir went to Brazil in 1861, as collector for the Royal Horticultural Society, and after spending about two years there, he proceeded to New Grenada, where his active career soon terminated. He had an attack of fever, "which, after a few days, went off, leaving him paralysed in all his limbs, from the neck downwards." This was in the autumn of 1864. But what a deplorable condition for a young man in a distant country! However, he met with good friends and kind nursing, and Mr. F. Stacey, H.B.M.'s Consul at Santa Martha at the time, at once communicated with the Royal Horticultural Society. On receiving this news, the Council of the Society directed that every care and attention should be paid to Mr. Weir, and that he should be sent home as soon as he was able to bear the voyage. He came home in the autumn of 1865, and it was soon recognised that his case was a hopeless one.

An appeal was made to the Fellows of the Society for subscriptions towards a fund to provide for the helpless man and his wife. This appeal was strongly supported in the *Gardeners' Chronicle* for 1865 (p. 1179), and again in 1866 (p. 170). What the exact result was we do not know, but poor Weir lingered on under the care of a devoted wife until the end of last month. As stated in the columns of this journal in the first place cited, during his brief career as a collector, Mr. Weir introduced many beautiful plants. Among other things he introduced a large number of living Orchids, but the cultivation of Orchids was not so well understood then as now, consequently fewer stand to his credit than might otherwise have been the case. Lists of the plants he sent home, together with descriptions of new species, will be found in the *Proceedings* of the Society between 1863 and 1865. Apart from this, we have abundant evidence of Weir's industry and keenness of observation. In addition to flowering plants and Ferns, he made a very extensive collection of mosses and Liverworts, including numerous new species, which were published in vol. xii. of the *Journal of the Linnean Society*. He retained a considerable portion of his collections till within a few days of his end, when, at his special request, it was sent to Kew. *W. B. H.*

Mr. A. G. Munro of New Barnet, furnishes the following interesting particulars of the deceased:—

"Sir Clement Markham speaks frequently and highly of him in his important publication. The two pleasures of poor Mr. Weir's life for years past have been his books and his garden; and though paralysed in a degree such as would have taken the very heart out of many men, he used to bind in leather the various horticultural papers and reviews which he took in. Indeed, the handsome rows of volumes now on his book-shelf would delight the editors who were responsible for the single weekly or monthly issues. Whenever a neighbour desired a little insight into botany, nothing gave Mr. Weir greater pleasure than to give of his rich botanical learning freely, concisely, and to the benefit of those consulting him.

"His house, Clydesdale Cottage, commands a fine view of the East Barnet Valley, and, in summer-time, Mr. Weir would either be sitting under an awning on a garden-seat in the middle of his plants and flowers—many of the latter being the humely and familiar

ones of the best species—or leaning over the wicket-gate, ready for a chat with a passing neighbour. The beauty of his garden was an admiration throughout the immediate neighbourhood. During the whole of his long sufferings he was patient and genial. The greatest blessing in his sad lot was that he had a devoted wife, who scarcely left his side night or day. I need hardly add that his interest in Kew remained keen to the end."

DR. ALEXANDER PATERSON.—Horticulturists near and far will regret to hear of the loss of the genial doctor, who never seemed so happy as when engaged in horticultural pursuits, dispensing hospitality, or sharing his pleasures with horticulturists. For many years one of the most highly valued pleasures of the great horticultural shows at Edinburgh was the day for the judges, the visitors, the pressmen, and jurors, to visit Dr. Paterson's gardens at the Bridge of Allan. These meetings and reunions became red-letter days to many distinguished horticulturists, and their memory lingers in their hearts and heads.

For years it was one of the doctor's special pleasures to send the Queen his choicest Orchids on her birthday, or present her at the Perth station with his richest treasures on her journey to and from her highland home at Balmoral. There are few more pathetic incidents than Dr. Paterson, with the stately grace of a venerable knight of the olden time, bending lowly to enrich his Sovereign with his sweetest and freshest flowers.

For some years Dr. Paterson has suffered from failing health. This compelled him to reduce his treasures, and part with the bulk of his favourite plants. While regretting this serious curtailment of his pleasures and also the loss of his wider experience to horticulture, we must bear in mind that, but for his delicate constitution, the probability is he would never have been an Orchid-grower, an antiquary, or the founder of the great health resort of the Bridge of Allan. His delicate health drove him out of Edinburgh, where he had begun to practise; and having obtained fresh vigour and renewed strength from the Bridge of Allan and its environs, he asked others, similarly afflicted, to do likewise, and with the happiest results.

Up to the last almost Dr. Paterson lived three or more lives—that of the healing, helpful physician; the other two are perhaps more pithily expressed by the statement that he lived in a garden and in a museum. While in horticulture he had also had special hobbies, and had ridden some of them, such as Orchids and Pitcher-plants, as hard as most men; yet his tastes seemed broad and catholic, embracing hardy trees, shrubs, herbaceous plants, alpines, Cacti, succulents, bulbs, foliage and flowering plants. Neither had his interest in horticultural literature declined in the least. He was an occasional correspondent of the *Gardeners' Chronicle* for many years.

For very many years Dr. Paterson had done good work for horticulture and among horticulturists, and he remained faithful and true to his calling till the last. Living and almost dying in his garden, fondling, growing, training, learning, loving his plants and flowers. 'Tis ever thus with the true gardener, whether amateur or professional. The true love of Nature and of plants is without beginning of days or end of life. It meets us on the threshold of life, and hardly leaves us at the close. *D. T. F.*

SOCIETIES.

ROYAL HORTICULTURAL.

MAY 10.—Just as on former occasions, immediately precedent to the Temple Show, the meeting on Tuesday last in the Drill Hall, James Street, Westminster, was marked by a much smaller display of plants and flowers than has occurred for some time. The general endeavour to make as good a show as possible at the greatest exhibition of the year, causes many of the exhibitors to husband their resources during the few preceding weeks, and anyone who has a really good novelty for presentation at about this period, prefers to wait for the additional honour of an award being granted at the Temple.

We saw the last of the Narcissi at the previous meeting, there being very few staged on Tuesday, but there was a most extensive collection of Tulips from Messrs. BAER & SONS, and other hardy flowers from Messrs. PAUL & SON.

Groups of pot Roses from Messrs. W. PAUL & SON were very attractive and showy, and lovely cut Roses from Mr. G. MOUNT, of Canterbury, were again evident. Awards of Merit were recommended by the Floral Committee to two varieties of Indian Azaleas; to three Alpine Auriculas; to a strain of scented Auriculas, and to a double-flowering variety of *Alyssum saxatile*. Before the Fruit Committee were presented the first Nectarines and Peaches of the season, and some excellent fruits of Royal Sovereign Strawberry; five Awards of Merit being recommended to Radishes shown from the Royal Horticultural Society's Gardens.

Orchids included several first class novelties, and are referred to in another column. In the afternoon, Professor Geo. Benslow gave an interesting discourse upon some of the plants before the meeting.

Floral Committee.

Present: W. Marshall, Esq., Chairman, and Messrs. C. T. Druery, Owen Thomas, Jas. Fraser, R. Dean, Geo. Stevens, W. Howe, Jas. Hudson, John Jennings, Thos. Peed, H. B. May, J. Fraser, Geo. Gordon, J. D. Pawle, Chas. E. Pearson, Chas. Jeffries, Chas. E. Shea, H. J. Cuthush, E. T. Cook, D. B. Crane, T. W. Sanders, H. Turner, C. Blick, Cecil E. Cant, E. Mawley, and Jas. Walker.

MR. JAS. TURNER, Royal Nurseries, Slough, made an exhibit of new varieties of *Azalea indica*. Awards of Merit were recommended to two of these, *Mdme. Joseph Vervae* and *Ami Chas. Vermeire*. The former is a large double pink-coloured flower, with deeper blotch; the latter, crimson colour single flowered, very free. Dryad, double white; Louise Cuvelier, also double white; M. Chas. Vuylsteke, a small double crimson-flowered, and President A. d'Haene, President Van Insechoot, semi-double dark crimson, La Printemps, a fine showy crimson, are all good varieties.

Mr. TURNER also showed a dozen-and-a-half plants of the Princess May variety of *Souvenir de la Malmaison* Carnation. This richly-coloured variety was in capital condition, the plants being well-grown, the flowers were large and finely-coloured.

A sweet-scented strain of yellow Auriculas was shown by Mr. DAVID STORRIE, St. Madocs Cottage, Glencarse, Perthshire, N.B. Both plants and flowers were very fine and large, there being several shades of yellow in the varieties. It was said the plants have always been grown, wintered, flowered, and seeded in the open border, and have had no protection of any kind at any time. The variations in colour have arisen through accidental fertilisation, no hand pollination ever having been attempted. The strain has been obtained during the past fifteen years by selection from the produce of one original yellow-scented plant that occurred in the ordinary border seedlings. Some of the varieties were more attractive than others, as *Souvenir de Hélène Thérèse* and *Souvenir de Sir James* (An Award of Merit was recommended the strain).

MR. JAS. DOUGLAS, Edenside Nurseries, Great Bookham, exhibited a collection of alpine Auriculas, and Awards of Merit were recommended to three varieties—*Perfection*, deep crimson, with yellow eye; *Denn Hale*, much the same colour, but in two shades, and the yellow in this case of a paler tint; and *Nixa*, a very perfect flower, with yellow eye, and deep crimson lips, edged light red.

MESSRS. PAUL & SON, Old Nurseries, Cteshunt, obtained an Award of Merit for a double-flowered *Alyssum saxatile*, and they also showed four fine new Cannas, named *Iona*, *Uncas*, *Orion*, and *Sirdar*. The three first-named varieties were self-coloured, and *Sirdar* had scarlet flowers with an irregular narrow border of yellow. Messrs. Paul & Son also contributed a group of hardy plants in flower, including the pretty blue-flowered *Phlox canadensis*, light blue flowers, and P. G. F. Wilson, lilac coloured, and other species; *Primula Sieboldi* Brilliant, a bright-coloured variety of this popular species; *Alyssum saxatile* variegatum, *Lheris superba*, sprays of double flowered Cherries, *Pyrus malus Sieboldi* ckeri, with rose and white flowers, and a pan of the tiny white flowered *Arenaria balearica* (Silver Banksian Medal).

The collection of Tulips and hardy flowering plants from Messrs. BAER & SONS, King Street, Covent Garden, London, extended along the whole length of one of the long central tables, and was awarded a Silver-gilt Flora Medal, the highest award made by the committee on this occasion. The collection was rich in species, and included the brightly-coloured *Tulipa elegans*, and its white-flowered variety; *T. stragulata*, yellow, and the variety named *Picta*, with purple or black base, and segment marked with red; *T. retroflexa* (yellow), and others, including a few of the Parrot varieties. Darwin Tulips were represented by numerous flowers, mostly dull in colour, and some of the prettiest varieties shown were *May Queen*, *Glow* (crimson), *The Sultan* (an extremely dark-coloured flower), *Barothy* (silvery bell-trope), *Anrora*, *Queen of Roses*, and *Phyllis*. The Lady flowering plants staged included a number of hardy Orchids, such as *O. papilionacea*, *O. maculosa*, *O. italica*, and *O. bombiflora* (Silver-gilt Flora Medal).

From B. RENNETT, Esq., Cheverells Park, Monstable, was shown an inflorescence of *Dracena indivisa*; and Mr. J. T. GILBERT DYKE, Bourne, Lincoln, had a bunch of double-flowered Anemones.

MR. J. JAMES, Woodside Nurseries, Farnham Royal, Slough, exhibited some *Cinerarias* raised from crosses between the garden *Cineraria* and *S. cruenta*, afterwards recrossed with *S. lanata*. These were much dwarfier in habit than the hybrid *Cinerarias* shown previously by Messrs. Sutton and Veitch.

the foliage taking somewhat after that of *S. lanata*. These may be the precursors of a fine strain, but at present are of botanical interest only.

A group of plants from Messrs. W. BALCHIN & SONS, Hassocks Nurseries, Sussex, included batches of *Boronia serrulata*, *B. heterophylla*, *Erica perspicua*, and the purple-flowered *Browallia elatior*, all of them bearing evidence of skilful cultivation.

Mr. H. B. MAY, Dyson's Lane Nursery, Upper Edmonton, showed a group of pretty *Codiaeums* (*Crotons*), staged thinly, and interspersed with a few ferns, and other plants. Of broad-leaved ones, the best conditioned were *Goldi*, *Thomsoni*, *Reidi* (a very fine piece), and *Baron Selliere*. The prettiest of the fine-leaved section was a well-grown plant of the rather difficult *Aigburth Gem*, and *Golden Ring*, with rich-yellow, waved and twisted leaves was good, also *Youngi*, *Gordoni*, *Superba*, *Flamingo*, &c. Altogether there were forty varieties staged in this representative collection of well-grown plants (Silver Banksian Medal).

Mr. Geo. MOUNT, again made a display of lovely *Rose-blooms*, and was awarded a Silver Flora Medal.

Messrs. W. PAUL & SONS, Waltham Cross Nurseries, Herts, had a group of pot *Roses* on either side of the entrance to the hall. Most of the plants being freely flowered they composed a showy picture, and boxes of cut blooms placed in front of them greatly increased the effect. Some of the older standard sorts were represented by specimens of considerable size, and the newer ones, such as *Queen Mab* and *Enchanted*, by younger specimens. The varieties that created the best effect were *Victor Verdier*, *La Rosière*, *Alphonse Soupert*, *Jeanne Dickson*, *Mme. Falcot*, *Gustave Piganeau*, *Melle. Fanny de Forest* (pure white), *Duke of York*, *Queen Mab*, and *Enchanted* (a Silver Flora Medal was recommended to this exhibit).

A group of East Lethian Stocks in flower, and boxes of *Pyrethrum aureum* (Golden Feather), was staged by Messrs. F. MILLER & CO., 267, Fulham Road, London.

Messrs. J. CHEAL & SONS, Crawley, showed a few sprays of flowering shrubs, also *Violas* in sprays.

A pretty group of plants from Messrs. W. CUTBUSH & SON, Highgate, London, N., included some finely-flowered plants of *Hydrangea hortensis* var. *Thos. Hogg*, *Souvenir de la Malmaison* *Carnation* var. *Princess May*, several Indian and *mollis* *Azaleas*, *Erica ventricosa coccinea minor*, *E. v. magnifica*, *E. perspicua nana*, *Boronia heterophylla*. A few graceful specimens of Japanese Maples, *Wistaria sinensis*, and ferns, made the group a very attractive one (Silver Banksian Medal).

Mr. Geo. STEVENS, St. John's Nursery, Putney, showed a few new *Carnation* flowers, but no awards were obtained by these, the committee being desirous of seeing the habit of the plants.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, Chelsea, showed a group of plants, including *Anemone nemorosa flore-pleno*, a dwarf double-white flowered variety; a fine lot of *Daphne Cneorum major*, also plants of *Hydrangea japonica Mariessii*, and *H. j. flore-rosea*, the former variety being a very showy plant exhibited at the Temple Show last year; sprays of *Rubus deliciosus*, *Sambucus racemosa serratifolia foliis aureis*, also *Citrus trifoliata*, and plants of the white-flowered *Cytisus Schipkensis*; a pretty light purple-coloured *Aubrietia* known as *Souvenir de W. Ingrami*; and *Nothopartium australe*, an extremely minute-flowered leguminosae, a hardy plant, with aggregated flowers along three parts the length of each stem.

Orchid Committee.

Present: Henry Little, Esq., in the chair; and Messrs. T. B. Haywood, Dr. B. Crawshaw, J. Douglas, W. Cobb, T. W. Bond, E. Hill, J. Jaques, H. Ballantine, H. M. Pollett, T. Statter, J. Gabriel, H. J. Chapman, F. J. Thorne, W. H. Young, W. H. Protheroe, and Jas. O'Brien (Hon. Sec.).

Messrs. J. VEITCH & SONS (Ltd.), Royal Exotic Nursery, King's Road, Chelsea, staged an extensive group, and were awarded a Silver-gilt Flora Medal. Of new plants, the gem of the group was the pretty *Spathoglottis* × *aureo-Veilardi*, with charming *Phalaenopsis*-like flowers of a clear chrome-yellow, the sepals having a few crimson markings, and the petals being profusely dotted with crimson. The side-lobes and tip of the front lobe of the lip, the column, and also the reverse of the flower, were tinged with crimson (First-class Certificate); another fine novelty was *Laelio-Cattleya* × *Wellsiana albida* (C. Trianci × *L. purpurata*), with white sepals and petals, and rich purple lip. Other remarkable plants were a fine example of *Cattleya intermedia* alba, some *Laelia* × *Latona*, and *Cattleya Schroderae*, of which C. S. *conulescens* was the most striking; the typical rosy-petalled *Laelio-Cattleya* × *Wellsiana*, and several remarkably fine plants of *Cattleya Mendeli*, including one of a wholly bluish-white tint; besides excellent *Odontoglossums* of species, the handsome *Brassia brachiata*, good examples of *Masevallia Veitchiana*, *Epidendrum Wallisi*, *E. elgintulum*, *Calanthe masuca*, *Cirrhopetalum picturatum*, *Cypripedium Mastersianum*, *Angreum modestum*, &c.

Messrs. HUGH LOW & CO., Clapton, exhibited a group in which the following were prominent, viz., *Vanda teres candida*, *Bulbophyllum Claptonense* with yellow flowers striped with dark crimson, a number of varieties of *Odontoglossum crispum*, *Cattleya Mendeli*, *Laelia purpurata*, and others; also *Cypripedium Rothschildianum*, &c. (Silver Banksian Medal). WELBORE S. ELLIS, Esq., Hazelbourne Dorking (gr. Mr. W. S. Barrell), exhibited a number of plants of *Odontoglossum crispum* of an excellent type and

capitally grown; likewise a couple of fine plants of *Miltonia vexillaria* that were profusely flowered.

FRED HARDY, Esq., Tyntesfield, Ashton-on-Mersey (gr. Mr. T. Stafford), showed *Sophro-Cattleya* × "George Hardy" (C. Acklandiae × *S. grandiflora*), a pretty dwarf hybrid, in growth like a slender *Cattleya Acklandiae*, and bearing a neatly-formed flower of a reddish tint, with a yellow patch at the base of the lip. It is a novel cross, that is showy and distinct in character (Award of Merit). Mr. HARDY's group comprised *Cattleya* × *Lowie-Mossiae*, *Cypripedium* × *Goweri magnificum*, and some flowers of *Sobralia macrantha alba*.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr. Mr. J. Davis), showed *Cattleya intermedia* Fowler's variety, a handsome variety that resembles some of the forms of *Laelio-Cattleya* × *Schilleriana*, with which it may be a secondary cross, though the polinia were those of a typical *Cattleya*. The inflorescence consisted of five flowers of a bluish-white tint, the front lobe of the lip, which is crumpled and expanded, and of a ruby-red colour. It is quite distinct from any other form of its class (Award of Merit).

WALTER COBB, Esq., Dulcote, Tunbridge Wells (gr. Mr. J. Howes), again showed *Laelio-Cattleya* × *Hippolyta*, Dulcote variety, which had previously received an Award of Merit, and which on this occasion received a First-class Certificate. It is the finest variety yet shown at the Royal Horticultural Society's meetings. The inflorescence was short and robust, and bore five flowers of a large size, and of a salmon-tinted orange colour.

Major JOCEY, Sunningdale Park, Sunningdale (gr. Mr. F. J. Thorne), showed a fine plant of *Anguloa Ruckeri*, with six flowers proceeding from one growth (Cultural Commendation); and the rare *Eriopsis rutidobulbon*, with an arching raceme of handsome flowers, the sepals and petals of which are yellow, edged with purple, the expanded side-lobes of the lip bearing a delicate tracery of purple, and the white front lobe some purple spots.

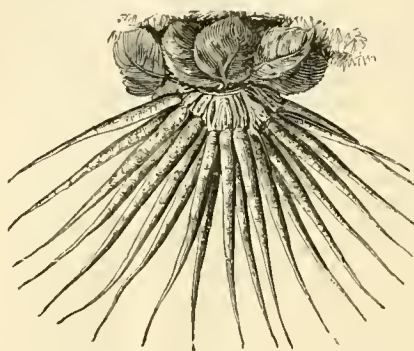


FIG. 113.—A MARKET-BUNCH OF RADISHES.

THOS. STATTER, Esq., Stand Hall, Whitefield, Manchester (gr. Mr. R. Johnson), showed *Cypripedium* × *macrochilum giganteum superbum*, with very large flowers of a lighter tint than those previously observed.

C. L. N. INGRAM, Esq., Elstead House, Godalming (gr. Mr. T. W. Bond), showed *Laelio-Cattleya* × *Fascinator* (C. Schroderae × *L. purpurata*), a very fine hybrid, with sepals and petals of a pale rose colour, the broad front of the lip being rich purplish-crimson; the throat white, with a yellow tint in the centre. It very closely resembles *L.-C.* × *Aphrodite* (C. Mendeli × *L. purpurata*), of which the forms "Eudora" and "Regalis" have previously been shown from the same gardens (First-class Certificate).

Messrs. LINDEN, l'Horticulture Internationale, Parc Leopold, Brussels, staged an effective group of cut spikes of fine varieties of *Odontoglossum crispum* and *Miltonia vexillaria*, one grand branched spike of which bore sixty-five flowers. There was a distinct sheen observed on the *Odontoglossums* seldom seen here.

W. G. SOPER, Esq., Harestone, Caterham Valley (gr. Mr. A. Wood), showed a plant of *Miltonia vexillaria* with fine flowers, and in regard to which it was said that the drainage in the pot (as in others grown with it) consisted of lumps of chalk, which were supposed to have a beneficial effect.

REGINALD YOUNG, Esq., Fringilla, Linnet Lane, Sefton Park, Liverpool (gr. Mr. T. Poyntz), showed *Cypripedium* × *Belus* (*Harrisianum nigrum* × *Mastersianum*), a very singular-looking hybrid, that approaches C. *Mastersianum* in form and substance. The upper sepal was green, furnished with a few purple markings inside the pale rose margin; petals and lip are of a brownish-yellow colour, with purple markings. The cross was effected in March, 1891; the seed was sown January, 1892; seedlings appeared in August, 1892; and the first flower in April, 1898.

Mr. J. ROBSON, Bowdon, Cheshire, showed a form of *Odontoglossum* × *Rochfordianum* (? *Hunnewellianum* × *crispum*), a class with rather small flowers, which has appeared in various collections lately. Flowers yellowish-white, spotted brown.

F. W. MOORE, Esq., Royal Botanic Gardens, Glasnevin, Dublin, showed *Epidendrum chitangense*, a curious species

with yellow flowers, the sepals and petals of which were spotted on the inner halves with purple, the front lobe of the lip being also dark purple (Botanical Certificate). *Epidendrum Brassavole*, and *E. campylostylis*. PHILIP CROWLEY, Esq., Waddon House, Croydon (gr. Mr. J. Harris), showed a good form of *Cypripedium hirsutissimum*.

Fruit Committee.

Present: Philip Crowley, Esq., chairman, and Messrs. Geo. Bunyard, Jas. Cheal, Jas. H. Veitch, G. W. Cummins, W. Gleeson, A. H. Pearson, T. J. Saltmarsh, Alex. Dean, J. W. Bates, W. Farr, Geo. Woodward, Geo. Wythes, G. T. Miles, F. Q. Lane, H. Balderson, J. Smith, G. Reynolds, G. Norman, Robt. Hife, and W. Poupart.

The best Apple in the competitive class for flavour was *Berefordshire Pearmain*, shown from a standard tree by C. P. SEACOLD, Esq., Taplow Hill, Maidenhead (gr. Mr. R. Bullock); 2nd, *Calville Rouge* from cordon on *Paradise* stock against wall, and exhibited by Mr. Geo. WOODWARD, Barham Court Gardens, Maidstone. There were three other dishes.

A 2nd prize was awarded to *Pear Beurré Bretonneau*, shown by Mr. C. HEARIN, Dropmore Gardens, Maidenhead, who described the variety as ripening very late, being fairly good after a hot summer, and useful on account of its good keeping qualities.

Strawberry Laxton's Royal Sovereign was shown in magnificent form by Mr. Geo. Norman, gr. to Lord SALISBURY, Hatfield House, Hatfield, Herts. He had about ten dozen fruits of enormous size, and was deservedly awarded a Silver Knightian Medal. Two dishes of smaller fruits were shown by A. HENDERSON, Esq., Buscot Park Gardens, Faringdon, Berks. Mr. Henderson also exhibited a white-fleshed juicy Melon from a cross between *Countess* × *Hero* of Lockinge.

Rivers' new Nectarine, *Cardinal*, was capitally shown by Mr. Jas. HUDSON, gr. to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, who had sixteen fruits. They were taken from pot-trees started on December 2, and the first fruits were gathered on May 2 (Cultural Commendation).

A second Cultural Commendation was awarded to a dish of Peaches, *Alexander*, very fine in size and colour, from Mr. John RYDER, gr. to Dowager Countess of LIMEACK, Hawkeley, St. Albans. A dish of Waterloo Peaches of moderate quality was shown by C. BOYER, Esq., Tewkesbury Lodge, Forest Hill (gr. Mr. W. Taylor).

A collection of six dishes of French Beans from Mr. Geo. WYTHES, Syon House Gardens, Brentford, and awarded a Vote of Thanks, included the varieties *Early Forcing*, *Mohawk*, Sutton's "No. 66," *Ne Plus Ultra*, *Syon House*, and *Wythes' Improved Mohawk*. Mr. WYTHES also showed a seedling variety of Cabbage-Lettuce.

Upwards of a score varieties of Radishes were shown in bunches from the Society's garden at Chiswick, where they had been cultivated beside each other. Five Awards of Merit were granted to these, the selected varieties being Sutton's *Forcing White Olive*, Sutton's *Caroline Olive*, Barr's *First-of-All White Olive*, Barr's *First-of-All Scarlet*, and Wood's *Frame Red*, the last named sent to Chiswick by Messrs. Watkins & Simpson, and being the only long Radish given an award. The two white ones Certificated appeared for practical purposes to be similar to each other.

ROYAL BOTANIC.

MAY 7.—At a meeting held on the above date, Dr. R. Boxall in the chair, Col. Sir Howard Vincent, M.P., Col. C. H. Thompson, Mrs. E. Boyton, Miss Hillier, Miss F. B. Owen, Miss Drummond, and Mr. G. P. Barker, were elected Fellows; and Mr. K. J. Marks, a member of the Society.

The donations to the Society's collections included two large Orchids, *Celogyne* from Lady Grimthorpe; and from Mr. John Price specimens of four varieties of Sugar Canes from the West Indies.

Dr. COODE ADAMS gave the second part of his paper on "Cacti," dealing more particularly with the *Opuntias*. One species of which is the Prickly Pear of the south, whose acclimatisation in South Africa has been an unfortunate thing for the colonists, since it is over-running whole districts, and no one seems able to eradicate it. A large number of species of the family, many remarkable for the beauty and gorgeous colouring of the flowers, was shown at the meeting by Messrs. A. W. Young & Co., Stevenage, to whom a vote of thanks were passed.

MAY 11.—The annual summer show under the auspices of the above Society was held on Wednesday last in the Gardens of the Society, in Regent's Park. In the *Gardeners' Chronicle* Almanac this event is set down for June 8, according to information supplied to us in December last by the Secretary to the Society. The exhibits were arranged, as usual, under a large tent over the ground specially laid out for this and similar purposes. There was no sign that competitive exhibitions will again become popular in these gardens, where years ago so many keen, if bloodless battles have been fought.

There were several creditable exhibits staged in the competitive classes, but in most cases they were alone, or competed with inferior collections. Fortunately a fine display was made by the trade exhibits, to which, in a very large measure, the success of the exhibition was due. The rough winds prevalent at times caused some anxiety for the safety

of the tent, probably more easily aroused owing to the *fascos* due to wind at Shrewsbury and York last season.

In conjunction with this show, the National Tulip Society held its annual exhibition of florists' Tulips, but the result is to further demonstrate the lack of interest there is at the present time for the florists' Tulip. The date was too early also, and many of the flowers staged had been cut and placed in heat to induce them to expand.

HONORARY EXHIBITS.

Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, decorated a mound with dwarf, freely-flowered plants of Turner's Crimson Rambler Rose, interspersed with *Spirea astilifolia*, *Hydrangea hortensis* and the white variety Thomas Hogg, and various ornamental-foliaged plants.

A nice group of varieties of Indian Azaleas was put up by Mr. CHAS. TURNER, Royal Nurseries, Slough, including those shown before the Royal Horticultural Society on the previous day, with considerable additions. Most of the plants represented new varieties, and were deep and pure in point of colouring, the proportion of double ones being considerable.

Messrs. JNO. PEE & SONS, Roupell Park Nurseries, Norwood Road, London, S.E., exhibited groups of *Cordylines* (*Dracenas*) and *Caladiums*. Some of the most attractive of the former were Tennyson, Madame Bergman, Prince Manouk Bey, Frederica, Berkley, and Lord Wolseley.

Mr. Kell, gr. to Mrs. ABBOT, South Villa, Regent's Park, had a group of miscellaneous flowering and foliage plants.

Messrs. W. CUTBUSH & SON, Highgate Nurseries, London, N., had a group of miscellaneous flowering and foliage-plants, including some large flowered *Souvenir de la Malmaison* Carnations, the group as arranged presenting a very attractive feature.

Messrs. WM. PAUL & SON, Waltham Cross Nurseries, Herts, displayed a capital group of pot-Roses, similar to the one staged on the day previous at the Drill Hall. In the Botanic Gardens, however, the site being so much more favourable to effective arrangement, the group presented a better picture.

Mr. GEO. MOUNT, Canterbury, had five large boxes for the display of Rose-blossoms, and a few with larger stems were shown in bottles.

Messrs. JNO. WATERER & SONS, LTD., Bagshot, Surrey, showed a group of Japanese Maples, in small specimens representative of a great number of varieties.

Mr. THOS. S. WARE, Hale Farm Nurseries, Tottenham, had a fine group of hardy flowering plants, in the centre of which were grouped together a number of *Orchis* species, and *Darlingtonia californica*. The group itself owing much of its brightness to several plants of *Tulipa Greigi*.

A capital group of miscellaneous plants was staged by Messrs. JOHN LAING & SONS, Forest Hill Nurseries, London, S.E., in which the many species of stove foliage plants were brightened by *Gloxinias*, double and single-flowered *Begonias*, bright coloured *Caladiums*, *Streptocarpuses*, *Anthuriums*, &c. The general quality of the plants shown was very good. A new *Caladium*, named *Gurainguetor*, with large richly-coloured leaf, bordered green, has the appearance of being a very good one. Several plants were shown of a new *Cordylina*, named *Rose Laing*, with leaves about 1½ inch wide, slightly recurved at the tips. Most of the young leaves were salmon-red coloured, and if the plants will readily colour to this extent the variety will be most effective. A fine new scarlet double-flowered tuberous-rooting *Begonia* was labelled *Earl of Dartmouth*. Messrs. Laing also exhibited a stand of florists' specialties.

Messrs. B. S. WILLIAMS & SON, Upper Holloway, London, N., had a very large group of *Orchids*, inclusive of *Cattleyas* *Lawrenceana* and *Mendeli* *Calanthe Sanderiana* and *veratrifolia*, *Ada aurantiaca*, *Cymbidium Lowianum*, *Cypripedium Sedeni candidulum*, and seven other *Cypripedes*, *Lelia purpurata*, *Masdevallia ignea*, *Dendrochilum latifolium*, *Odontoglossum crispum*, *Pseudestria cirrhosum*, *luteo-purpureum*, &c. *Oncidium concolor*, *Trichopilia lepidia* and *Vandas tricolor*, *suavis* and *teres alba*, &c. Many plants of *Anthurium Scherzerianum* too were staged, and a few good *Cliveas*, *Mollis Azaleas*, *Lilacs* and *Frieas*, and a pretty bright scarlet *Canna*, with very narrow margin of yellow, named *Mrs. Fairman Rogers*.

Messrs. WILLIAMS also showed from their establishment, 169, Piccadilly, a collection of florists' specialties, the best features in which was a basket of exquisite *Roses*, and one of *Odontoglossum* and *Souvenir de la Malmaison* Carnations. A scarlet shower bouquet of *Anthuriums* and *Raspail* *Pelargoniums*, with flowing ribbons, was effective, and there was a mirror, the frame of which consisted of flowers of a white *East Lothian* stock.

Messrs. BARR & SONS, King Street, Covent Garden, made even a greater show of Tulips than at the Drill Hall on the previous day, and tastefully arranged on the grass the exhibit was one of the gayest in the tent. Though especially rich in species of Tulips and varieties of the Darwin section of Tulips, the collection included a good number of florists' flowers as well as others of the Parrot type.

Messrs. T. RIVERS & SON, Sawbridgeworth, exhibited sixteen finely fruited standard trees of their new *Nectarine*, *Cardinal*. This excellent variety for forcing was sent out with a reputation for ripening ten days earlier than *Early Rivers*, and many gardeners have already proved that such a description understates the time gained.

A collection of first-class vegetables was shown by Mrs. WICKFIELD, Amphill House, Amphill (gr. Mr. W. J. Emspon). Potatoes, Asparagus, Mushrooms, Spring Cabbages, Broccoli, Carrots, Kale, Onions, Cucumbers, Tomatoes, French Beans, and enormous *Leeks* were very fine. The exhibit also included Bananas, Royal Sovereign Strawberries, Apples, and Pears, and Beans and Peas fruiting in pots.

COMPETITIVE CLASSES.

The exhibits described below were the most noteworthy.

Messrs. J. PEE & SONS staged a very nice group of *Caladiums*, some of the better known sorts being represented by good-sized specimens, the newer ones, such as *Lady Mawley*, *Silver Cloud*, *Ville de Hambourg*, &c., by smaller ones; but all the plants were very pretty.

The 1st prize for ten *Roses* in pots was taken by Messrs. G. JACKMAN & SON, Woking, who had very large specimens of *Magna Charta*, *Sénateur Vaisse*, *Comtesse de Serenyi*, *Madame Lacharme*, *Duchesse de Morny*, *Crimson Rambler*, *Celine Forestier*, and *La France*, the last named being very pretty; and Mr. W. RUMSEY was 2nd in this class, but obtained 1st prize for a group of *Roses*, in which there were included some forty or more plants.

Mr. MOUNT, of the Canterbury Nurseries, won 1st prize for twenty-four cut *Roses*, showing in his usual excellent fashion; and Mr. W. RUMSEY, Joyning's Nurseries, Waltham Cross, was 2nd.

Mr. G. KELL, who took a 1st prize for six specimen *Palms*, showed very good plants indeed, including the following species:—*Chameroops humilis* and *Fortunei*, *Phoenix rupicola*, *Livistona chinensis*, and *Areca lutea*.

The only competitive groups of *Orchids* were staged by Mr. G. Cragg, gr. to W. WALKER, Esq., Percy Lodge, Winchmore Hill. They were composed of *Cattleyas*, *Laelias*, *Dendrobiums*, *Cypripediums*, and *Odontoglossums*. The *Cattleyas* included five plants in flower of *C. citrina*.

Forty-two-four-ounce *Pelargoniums*, and twenty-four-trusses of *Pelargoniums*, Messrs. A. W. YOUNG & CO., Stevenage Nurseries, won 1st and 2nd prizes respectively, showing the variety *King of Denmark*, a salmon-pink, semi-double-flowered.

NATIONAL AURICULA. (Northern Section.)

APRIL 30.—This body held its annual show in the large room of the Free Library, Middleton, Manchester, on the above date, when a very beautiful exhibition was got together of these very interesting plants. The weather unfortunately debarred good attendance, which is much to be regretted. The principal prize flowers showed good quality combined with high cultivation. Among the principal exhibitors were the Rev. F. D. Horner, Messrs. Lord, Simonite, and Beswick.

SHOW AURICULAS.

For six distinct, Rev. F. D. Horner 1st, Mr. T. Lord 2nd. The premier Auricula of the show was shown by Mr. Lord, with Mrs. Henwood, green-edged.

The premier Alpine Auricula, a prize for which was offered by R. Gorton, Esq., was shown by Mr. T. Lord, for his "Charles Turner."

For *Polyanthuses*, black grounds. For three dissimilar, G. Thornley 1st.

For three ditto, red grounds, J. Beswick 1st.

For single plant, black grounds, Geo. Thornley, 1st, 2nd, and 3rd.

For ditto ditto, red grounds, J. Beswick 1st, J. Greenhouse 2nd, and G. Thornley 3rd.

From Messrs. Barr & Sons, of Covent Garden, came a good collection of *Narcissus*, including many of the leading varieties; the same firm sent collections of *Primroses*, *Auriculas*, and many varieties of single and double Tulips. J. W. Bentley, Esq., of Castleton, sent some well-grown specimens of *Azaleas* and cut-flowers of *Aponogeton distachyon*, and also of *Wistaria* and *Rhododendrons*.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

MAY 3.—This Association held a very successful and interesting meeting on the above date, in their rooms, St. Andrew Square, Edinburgh.

Among several exhibits on the table, including a brace of the finest spring Cabbages seen this year, were three fine blossoms of W. H. Lincoln *Chrysanthemum*, from Mr. P. HUNT, Coltbridge Hall; and several choice *Narcissi* from Mr. J. ALEXANDER, of Revesby Abbey, Boston, Lincolnshire. Among these were some fine examples of Sir Watkin, Golden Spur, Incomparable, a very blanchéd paper-white semi-double; *Orientalis*, bicolor grandis, &c. Mr. TODD, the president, also exhibited a beautiful blend of *Irises* and *Narcissus*, intermixed with *Smilax* and other foliage.

In the absence of the author, the Secretary of the Association, Mr. R. L. LAIRD, read Mr. Alexander's able paper. With a few sentences upon the large importations from Guernsey and the Scilly Islands, he went on to speak of the extreme usefulness and importance of *Daffodils* from trade and decorative points of view. We had no hardy or other flower that travelled better, kept so long or well, and produced better results in decorative arrangements. The demand for them was enormous, and it had been said that as many as 200 tons of flowers had arrived from the Scilly Islands in a day.

Mr. Alexander then proceeded to give a long account of the culture and treatment given to *Narcissus* by two of the best local growers, Mr. T. KINN, Maribank-le-Fen, near Boston, Lincolnshire, and Messrs. White & Sons, near Spalding. The latter have, perhaps, the better, that is the deeper soil, a point of considerable importance in bulb-growing; though that of Mr. Kinn has been greatly improved

by the additions of spent tan and other refuse. The Boston growers also plant in rows some 9 to 14 inches apart, while the Messrs. White seem to grow chiefly in 4 feet beds, the bulbs being planted from 4 to 6 inches asunder. Great care is taken to thoroughly clean the land of Couch, and to get it into good condition before cropping with bulbs. Soot and bono-dust are chiefly used as top-dressings, and their good effects speedily tell on the colour, strength, and width of the leaves, a point of much importance in these modern times, when, as our President, Mr. Todd, reminded us, the leaves of *Daffodils* have a special commercial value for decorative purposes.

The chief cultural points referred to were lifting the bulbs in July, or as soon as the leaves wither, and drying them off in Potato sprouting-boxes; that is, those used to green-seed or to start Potatoes in. Planting should be performed in August or September to ensure success. Great care should be taken to prevent the sorts being mixed, as, of course, there are wide differences in price between Sir Watkin, Golden Spur, princeps, bicolor grandis, &c., and such old sorts as Butter-and-Eggs, Codlins-and-Cream, and other old favourites, which we were pleased to hear were also grown in quantities. A cool store-room of considerable size is almost a necessity on every bulb farm. The long stalks of the *Narcissus* favour safe storage. Pails or tanks filled with water are latted over with laths, and the stems of the *Narcissus* passed through into the cool water beneath. Here the flowers are safe from scorching winds and fierce sunbeams, and are within reach of the packers and bunchers, mostly women, who receive a halfpenny per dozen bunches, each bunch containing a dozen blooms. The bunches should have two ties of raffia-fibre. It is said that one woman will sort and tie 50 dozen bunches of twelve each, in a day; also, that she will tie 1000 bunches; also, that some 200,000 bulbs were needed to plant an acre, which in case of the finer sorts represented a large amount of capital. Nevertheless, though prices had ruled a little lower this year, there could be no question that bulb-growing paid well, and cases were cited of labourers and small holders who had made as much as £20 of their bulbs. It was also stated that some of the small holders had grown the finest bulbs.

At the request of the President (Mr. Todd), Mr. Fish made a few remarks on the vital importance of such home-industries as hardy bulb-growing to the happiness and prosperity to our rural classes; and Mr. Alexander Mackenzie of the Warriston Nurseries moved a hearty vote of thanks to Mr. Alexander, who had once been in these nurseries, which was heartily carried.

THE GREAT QUINQUENNIAL MEETING AT GHENT, as described by two gentlemen from Edinburgh. At the close of the meeting of the Scottish Horticultural Association on the "Culture of Hardy Bulbs," the President asked Mr. J. P. LAIRD, one of the judges at Ghent, and Mr. ALEXANDER MILNE to give a few personal impressions of the great show. Mr. LAIRD began with a graceful testimony to the British Horticultural Press for its copious reports of the great show. As to Ghent, the show is looked upon as the great national festival, in which the whole nation, from the King of the Belgians to the poorest of his subjects, participate. We get Royal patronage for horticulture in England, but it would somewhat astonish us to have to meet the Queen or the Prince of Wales at 8 A.M. at our great flower show, or to have either spend three hours in our biggest and best shows. But then in Ghent, horticulture is a national industry. The chief exhibition building is a permanent Hall of Horticulture, and the mere annexes are superior even to the Waverley Market. There were some 700 separate classes, and the special list of this fourteenth great exhibition, which Mr. Laird held in his hand, formed quite a book. The area of the exhibition covered some 3 acres, and there was, it was said, some 12,000 plants exhibited, 1500 of them being *Azaleas*, some of the latter some 8 feet in diameter. As there were nine lots of *Azaleas* shown of sixty plants each in thirty varieties, a vivid picture of the magnitude and grandeur of the great show of Ghent may be obtained.

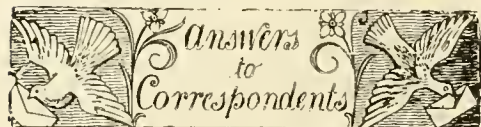
With a vivid description of the cosmopolitan character of the jurors, who, if not collected from Persia and Peru, came from Brazil, Japan, England, Scotland, France, &c., and of the new plants noticed in the *Gardeners' Chronicle*, and with a pathetic reference to Louis Van Houtte and Mr. Linden's memorial plants, probably a hundred or more, Mr. Laird concluded his all too-brief description with an eloquent testimony to the Ghent Exhibition as an object-lesson of great value to us in the culture of hard-wooded plants, which seemed in danger of becoming a lost art in Scotland.

Mr. MILNE confined his remarks to the nurseries of Ghent and Bruges, and specially dwelt upon the enormous amount of glass, and the concentration of business energy on a few specialties. One of 2 or 3 acres of glass grew chiefly three things—*Palms*, *Araucarias*, and *Sweet Peas*. The Messrs. Sander of St. Albans are said to have many acres under glass in their nurseries at Bruges, visited by Mr. Milne. One nursery with several acres of glass was said to be worked with twenty-two men. But then the hours are much longer than in Britain, and the wages much lower.

Truly there are more object-lessons than the improved culture of hard-wooded plants to be learned at Ghent and Bruges, and one of them undoubtedly is the longer leisure and equal or superior opportunities offered to Scotch, English, and Irish gardeners to master, so far as may be possible, the science and practice of horticulture to those offered to their foreign rivals or competitors [J. D. T. Fish].

PLANT PORTRAITS.

- CHIONODOXA LUCILÆ, SARDENSIS, *Floriegium Haarlemense*, t. xviii.
- HYACINTH, KING OF THE BLUES, *Floriegium Haarlemense*, t. xvi., raised by Van Velsen, introduced 1866.
- IRIS STYLOSIA, *Bull. Soc. Toscan.*, t. i., 1898.
- PEAR BUTIRRA D'HARDENPONT (Beurre d'Hardenpont), *Giornale d'Agricoltura*, t. ii., 1898.
- PEAR TRIOMFHE DE VIENNE, a Pear raised at Vienne, in S. France, September and October.
- PLUM MYROBALAN, *Bulletin d'Arboriculture*, &c., April.
- ROSE CAPRICE DE VICK, *Moniteur d'Horticulture*, May.
- SCILLA SIBERICA, *Floriegium Haarlemense*, t. xviii.
- TILLANDSIA LANDENI TRICOLOR, *Revue Horticole*, May 1.
- TULIP: 1, La Reine, white; 2, Gele Prins (Yellow Prince); 3, Zilveren Standaard, white with red stripes, *Floriegium Haarlemense*, t. xvii.



ANEMONE ST. BRIGID: *H. H., Carlisle*. This "The Irish Anemone," is a fine large-flowered variety of the single flowered *Anemone coronaria*.

ASPARAGUS: *W. C. L.* A very fine sample—could scarcely be finer, or consist of more edible portion.

BLACK CURRANTS: *W. W. H.* Infested with the mite. Cut off and burn all affected shoots, and if the entire bush is affected similarly, dig it up, and burn. There is no known cure, and total destruction is the best policy.

BOOKS: *J. B.* *The Tomato: its Culture and Uses*, by W. Iggulden, office of *Journal of Horticulture*, 12, Mitre Court Chambers, Fleet Street, E.C. Price, 1s.

CARNATION AND ROSE: *Wilts*. The first is affected by *Helminthosporium echinulatum*, as you suspect. There is no known cure, but you might keep the fungus from attacking sound plants by occasionally dressing them with sulphide of potassium $\frac{1}{2}$ oz. to 1 gallon of water. Burn the diseased plants forthwith. The Rose is affected by the Orange-rust. Cut off and burn affected shoots, and apply flowers-of-sulphur to the bushes when wet with dew or rain.

CHRYSANTHEMUM LEAF-MINER: *X.* Remove the leaves as soon as attacked, and syringe the plants with Quassia-chip solution, or fumigate them with a view to rendering them distasteful to the mature insect.

CHRYSANTHEMUM RUST: *B. P.* Apply sulphide of potassium $\frac{1}{2}$ oz. to the gallon of water occasionally.

CHRYSANTHEMUMS: *W. Brown*. The leaves are affected by rust. Apply sulphur, a mild form of the Bordeaux Mixture, or sulphide of potassium $\frac{1}{2}$ oz. to 1 gallon of water. We fear you do not read your *Chronicle* attentively.

DOUBLE-FLOWERED BERBERIS STENOPHYLLA? *W. A.* Your plant is more like *D. Darwinii*; but, as you know, all sorts of varieties come from hybrid seeds.

EUPHARIS: *B. P.* When growing keep the plants in a very moist atmosphere, syringing them two or three times a day, and during the resting period omit the syringing and do not afford much water, only affording it to prevent wilting. If Eupharis are syringed often daily when growing, water need not be afforded with the water-can. The temperature for growing plants, and at such times as the plants are forced into flower after a rest, should, at night, be 65°, and by day 75° to 80°; at other times 60° to 70° are suitable.

GLOXINIAS: *B. P.* Do not syringe the plants at any time.

HYMENOCALLIS: *Contich*. *Hymenocallis ovata* and *H. galvestonensis* much resemble one another in the flowers, but the former has an oblong leaf 4 to 6 inches broad, narrowed gradually to the base, and the latter a linear leaf not more than an inch broad. *J. G. B.*

INSECTS: *Graham*. Caddis-worms; larvæ of insects of the order Trichoptera, sometimes injurious to aquatic plants. *R. McL.*

INSECTS IN MUSHROOM-BED: *W. C.* The insects sent are Uropoda, but being immature, the species cannot be identified. Limb and spot or petroleum emulsion might stop them. There is, however, reason to suppose the insects do no damage to the Mushrooms, but rather feed on other things that

do; but the food of Uropoda is not really known with certainty. *A. D. M.*

LEATHER JACKETS: *Harrobian*. The insect has been named, and remedies given, on several occasions lately. Consult previous issues.

MAIDENHAIR FERN: *B. P.* Not to syringe the plants is the safer practice.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*W. Cooke*. *Leucojum aestivum*, Summer Snowflake.—*W. Brown*. *Euonymus radicans aureo-variegata*, a prostrate form of *E. japonicus*. It is a good hardy rockwork plant.—*S. S.* The plant was known as *Browallia Jamesii*, but its name up to date is *Streptosolen Jamesoni*.—*C. J. H.* We cannot undertake to name varieties of florists' flowers.—*T. T., Nuncaton*, 1, *Serapias cordigera*; 3, *Ophrys apifera*; 4, *Aceras anthropophora*; 5, *Ixia odorata (erecta)*; 6, *Bartholinia pectinata*.—*G. P.* *Cyrtomium erythroides*; 2, *Polypodium glaucum*; 3, *Dictyogramma japonica*; 4, *Davallia Tyermui*; 5, *Davallia bullata*; 6, *Caragana arborea*; 7, *Davallia tenuifolia*; 8, *Cyrtomium Fortunei*; 9, *Adiantum macrophyllum*.—*J. L.* *Cologyne lactea*.—*C. A. B.* 1, *Begonia corallina*; 2, *Agathæa cœlestis*; 3, *Eupatorium Weinmannianum*; 4, *Aspidium (Neopodium) molle*; 5, *Saxifraga sarmentosa*; 6, *Polystichum coriaceum cespense*.—*E. T., Ashford*. 1, *Orchis (next week)*; 2, *Buddleia globosa*; 3, *Kerria japonica flore-plena*.—*W. J.* 1, *Schomburgkia tibicinis*; 2, *Dendrobium Devonianum*.—*W. C. F.* 1, *Spirea betulifolia*; 2, *Cryptomeria elegans*; 3, *Prunus Palus*; 4, 5, and 6, varieties of *Rhododendron arboreum*, or hybrids of it.—*A. C. C.* A form of *Narcissus calathinus*; perhaps a cross between that species and some other.—*J. B.* 1, Double Cherry, Waterer's variety, pink; 2, Double Cherry, Waterer's variety; 3, *Arundinaria japonica*; 4, *Scirpus sylvaticus*; 5, *Skimmia japonica*; 6, *Scilla hispanica*.—*Crowe*. The yellow flowered is *Saxifraga aizoides*; the white one *S. hypnoides*.—*J. E.* *Asclepias curassavica*.—*A. B. S.* From the condition in which the fungus reached us, we are unable to name the same.

NARCISSUS: *J. G.* Fasciation is by no means uncommon in these plants.

NEW ODONTOGLOSSUM-HOUSE: *Enquirer*. If the adjoining house is also used for the cultivation of *Odontoglossum*, can you not attach the new one to it, have a saddle-roof, with wide guttering between the two to receive the rainfall, doing away with the dividing wall, and merely furnishing piers or oaken posts to support the two roofs at the point of union? The bricks obtained from the discarded wall will do to build the outer walls of the new house. Sufficient ventilation can be obtained by making openings in the walls, furnishing these with louver board shutters, and by means of ventilators in the roof.

NYMPHEAS: *J. G. W., Isle of Rum*. The Marline varieties will live and thrive in an open tank in your district, provided it be placed in a warm position, say, against the wall of a hothouse, and wholly sunk in the ground. The roots may or may not be kept under water during the period of rest, that is, if they are grown in flower-pots, and therefore portable.

PALM LEAF AND SCALE INSECTS: *E. C.* Palm-leaf is infested with the Thread-scale (*Ischnaspis filiformis*, Douglas). You cannot remove the scales at once without injury to the leaves; but you can destroy the insects by applying any of the insecticides in general use, giving two or more applications at intervals of ten to fourteen days. After a time the scales will naturally come away from the plant. The scales hold on very firmly, and being soluble in potash, are difficult to remove. *G. N.*

PEACHES FALLING OFF: *G. McK.* Too thickly cropped. The growth is in excess of the nutriment, or what comes to the same thing, the nutriment cannot get to the fruits in sufficient quantities at the right time, hence the failure.

PEACH-TREE GUMMING: *Beginner*. The Peach twigs sent show "gumming." The young twigs become discoloured just under the bases of the leaves, and the patches rapidly extend. The cambium or growing part of the twig shows a breaking-down into a brownish gum, which spreads through neighbouring parts and causes the discoloration and collapse seen from the outside. No fungus or

other cause can be found. The whole question of "gumming" of fruit trees has been often discussed, but no satisfactory reason for it has yet been given, though fungus (*Ascofphora Beijerinckii*) and bacteria are suspected. Defects in cultivation certainly produce the disease, and in the present case the much shaded position of the house seems a sufficient explanation. Internal heat without all the sunshine we can get in this country can never produce healthy growth. It will probably lead to insufficient hardening of last year's wood, and a deficiency in the food material; the foliage and fruit will utilise all available food, while the new internal stem-tissues starve and break-down into a gummy substance. Certainly more sunshine is necessary if everything is to go well. Reducing the fruit-crop would also help to give other parts a share of food-material. For the present, discoloured twigs should be pruned off, this will relieve the tree of what can never be healthy twigs. *W. G. S., Leeds*.

PEAR LEAVES: *S. R.* The leaves are affected with mite, *Phytoptus pyri*.

PEAT MOSS MANURE: *Humulus*. A recommendable manure for heavy land, provided it has been kept under the animal's so long as it is capable of absorption. We should suppose it to be richer in plant food than spent hops.

PELARGONIUM SEEDLING: *J. B.* So far as we can judge from the truss of flowers which were shedding on arrival here, your variety is a very fine one. Send it to a large grower of Pelargoniums, or submit it to the Floral Committee of the Royal Horticultural Society. In either case it would be necessary to send the plant or several specimens, so that its general habit of growth and flower may be seen.

SCALE INSECTS: *S. R.* The Apple scale (attacking, however, many plants) *Mytilaspis pomorum*. It has nothing whatever to do with the San José scale.

SEEDLING CANNAS TURNING BROWN AT THE EDGES OF THE LEAVES: *B. P.* There may have been a check given in transferring them from the propagating-house to the warm greenhouse, or cold-water afforded, or cold draughts have struck them, or many things; you give us no clues.

SPENT HOPS: *Humulus*. When mixed with stable-dung they ferment readily, and make, when decayed, a good manure for vegetable cultivation. The Hops, if in large quantities, heat strongly, but do not so readily decay as when combined with litter. If the stench arising from their fermentation were not so offensive, Hops would make lasting materials for hot-beds.

TOMATOS: *J. B.* Your plants are affected with a fungus (*Cladosporium*). Burn the affected plants, and syringe the healthy ones with sulphide of potassium, half-ounce to one gallon of water.

TULIPS: *E. C. E.* 1, near to *T. chrysolora*; 2, form of *T. fragrans*. It will be better to send them to some large grower, as we cannot name them with certainty.

VINES: *Grape*. 1, over-feeding—more nutriment than the plant can digest in the time; 2, scorching.

COMMUNICATIONS RECEIVED.—*W. T. Fisher*.—*G. J. Holmes*.—*W. W. Watkins* and *Simpson*.—*A. W. W.*.—*F. W. S.*.—*F. Sander & Co.*.—*A. D. M.*.—*W. A. Clark*.—*R. D.*.—*D. T. F.*.—*W. S.*.—*W. Carmichael*.—*J. O'B.*.—*A. D.*.—*G. G.*.—*D. R. W.*.—*J. J. W.*.—*G. W.*.—*W. W.*.—*E. J.*.—*A. D.*.—*M.*.—*W. E. G.*.—*E. F.*.—*T. K. D.*.—*Sagan*.—*D. T. F.*.—*W. E. G.*.—*F. A. W.*.—*W. T. K. D.*.—*A. K. A.*.—*Chaukow*.—*S. H. L.*.—*L. L.*.—*Brussels*.—*W. K.*.—*G. Dance*.—*W. F. T. Barre*.—*J. A.*.—*R. H. N.*.—*R. K.*.—*Oxon*.—*E. T. Ashworth*.—*S. F.*.—*R. K. E.* (rust in Grapes).—*S. D.*

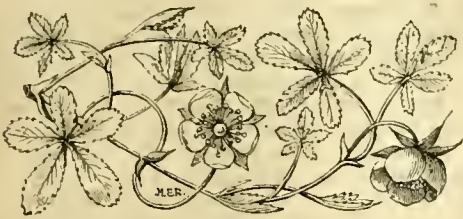
CONTINUED LARGE INCREASE in the CIRCULATION of the "GARDENERS' CHRONICLE."

Important to Advertisers.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED,

and that it continues to increase weekly.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE

Gardeners' Chronicle.

SATURDAY, MAY 21, 1898.

THE WEeping WILLOWS.

THESE trees may be divided into two groups, the first being those which (like *Salix babylonica*) naturally grow into large trees with a pendulous habit, whereas the second (like the so-called American Weeping Willow) are really low or prostrate shrubs, made into small weeping trees by grafting on standards. The former are, of course, the more important as material in the landscape-gardener's hands; but the smaller ones, too, are very pretty. Nowhere do the Weeping Willows look so well as in their natural position near water, where the graceful lines of *S. elegantissima*, *S. alba pendula*, and *S. babylonica* are especially telling. With regard to *S. babylonica*—and, indeed, all other trees of unusual habit or colour—a certain reserve must be maintained in planting it. It is not a tree that should meet the eye at every turn. There is about it a suggestion of excessive sentimentality, which, like the real thing, becomes wearisome if too frequently repeated. It is, I think, as an isolated tree, rather than in immediate association with other trees, that the Weeping Willow is seen to best advantage.

S. babylonica, *S. alba*, and the varieties and hybrids belonging to them, can easily be increased by cuttings, and reach their full size without artificial aid. *S. cordata pendula* can also be propagated in the same way, but has to be trained up to the required height. All the others mentioned are best worked on tall stems, and the Goat Willow (*S. caprea*) is as good a stock as any for them.

S. babylonica.—This is, of course, the most popular and typical of all the Weeping Willows; and although it could not have been known to Shakespeare, no Willow recalls more aptly the music of his words—

"There is a Willow grows aslant a brook,
That shows his hoar leaves in the glassy stream."

Anyone who in summer time has travelled up the Thames from Richmond to Sunbury will have noticed how much of the beauty of the riverside is due to this tree. There is no doubt that the first English specimen of *Salix babylonica* was grown in this neighbourhood. A story used to be current that it originally came from Spain, a present, it was said, sent to Lady Suffolk from that country in a basket; and Pope, who was present when it arrived, noticing that some of the twigs of the basket were alive, had one rooted, which eventually grew into a celebrated tree at Twickenham. This may be true so far as that particular specimen is concerned, but it rests only on newspaper authority, published in 1801. An earlier and more authentic account of its first introduction was found in the manuscript notes of Peter Collinson, many of which were published in the tenth volume of the

Transactions of the Linnean Society. Collinson there observes that "Mr. Vernon, Turkey merchant at Aleppo, transplanted the Weeping Willow from the River Euphrates, brought it with him to England, and planted it at his seat at Twickenham Park, where I saw it in the year 1748. This is the original of all the Weeping Willows of gardens." The species has long been cultivated in the temperate parts of Europe and Asia. It does not appear ever to have been found in an undoubtedly wild state, but is most probably a native of China. It attains a height of from 30 to 50 feet, and always succeeds best where there is abundant moisture.

S. b. var. annularis (syn. *crispa*) is very distinct, its leaves being curiously twisted, or even spirally curled. It must rank as a curiosity rather than as a handsome tree, for it is neither so graceful nor so vigorous as the type.

Salix Salomoni.—By some authorities this Willow is made a variety of *S. babylonica*; by others it is thought to be a hybrid between that species and our native White Willow (*S. alba*). Compared with *S. babylonica*, it is not so distinctly pendent in habit, but is of much sturdier growth. According to some experiments recorded in one of the last numbers of *Garden and Forest* (vol. x., p. 496), it proved in a young state to be the fastest-growing of all the Willows. Stems cut back to 2 feet from the ground at the Chico Forestry Station, California, in February, 1896, were, in August, 1897, 31 to 32 feet high. Its young branches are yellowish-green, and the long, narrow, lanceolate leaves are bluish-green, beneath, and, indeed, very like those of *S. babylonica*.

S. elegantissima.—This is another Willow whose origin is not certainly known. Some authorities have considered it to be a hybrid between *S. babylonica* and *S. fragilis*, and this appears to be the most probable origin. Being harder than *S. babylonica*, it is a useful Weeping Willow for climates too cold for that species, and although it lacks its peculiar grace, it is a very elegant tree. It is of more spreading growth than *S. babylonica*, and takes after *S. fragilis* also in the leaf, which is larger and broader than in the other species reputed to be its parent, and quite glabrous. *S. elegantissima* may be described as intermediate between the *S. blanda* next described, and *S. babylonica*.

S. blanda.—The origin of this Willow is thought to be the same as that of *S. elegantissima*, viz., *S. babylonica* × *S. fragilis*. It may be easily mistaken, indeed, for *S. elegantissima*. It differs, however, in its even more vigorous growth, its broader, more glossy green leaves, and its less purely pendent growth, being, in short, altogether a nearer approach to *S. fragilis*. It is capable of bearing a greater degree of cold than is *S. babylonica*.

S. alba var. pendula.—From *S. babylonica*, the White Willow is in all its forms to be distinguished by the silky covering on both sides of the leaf. Even in its typical form it is a very graceful tree, with its slender, pendent twigs; but this character becomes more marked in the variety *pendula*. There is also a weeping variety of the Golden Osier (*S. vitellina* or *S. alba vitellina*), in which the young shoots towards the latter part of the year become a rich yellow colour. Both these grow into tall trees.

S. caprea var. pendula (The Kilmarnock Willow).—The weeping variety of the Goat Willow is well known in gardens. Like the type, it flowers in early spring on the leafless branches, and is then very handsome. The leaves are dark green above, and clothed beneath with a thick white wool; they are, moreover (with those of the type), perhaps the largest among all the Willows. The branches of the Kilmarnock Willow are perfectly pendent, but stiff and sturdy. It is a useful plant where there is no room for the bigger Weeping Willows. It is usually grafted on standard-stems of the common Goat Willow.

S. purpurea var. pendula.—In gardens this is oftenest known as *S. americana pendula* (the

American Weeping Willow), an unfortunate name, as *S. purpurea* is an Old World species. It is grafted on standards of *S. caprea*, and makes a very handsome weeping-tree. The leaves are linear, narrowest towards the base, and borne on long slender twigs, and the tree, as a whole, is more graceful than the Kilmarnock Willow.

S. purpurea var. Scharfenbergensis appears in the continental catalogues; it is said to be superior to *var. pendula*.

S. repens var. argentea.—A commoner name for this when grafted on standards is *S. sericea pendula*. It is really a variety of the common *S. repens*, with oblong leaves from $\frac{1}{2}$ inch to 1 inch long, and beautifully silvery and silky beneath. Grown on standards it is quite a pretty weeping bush, perhaps the most charming of these dwarf kinds. Both type and variety are natives of Britain.

S. caesia var. Zabeli pendula.—In nurseries one meets with this under the name of *S. Zabeli pendula*, but Mr. Nicholson has referred it to *S. caesia*—a determination also arrived at by the continental botanists. When worked on standards it makes a handsome weeping tree of low growth. The leaves are obovate or oval, 1 to $1\frac{1}{2}$ inches long, and of a bluish-green colour. *Salix caesia* is a native of middle and south-west Europe.

S. cordata var. pendula.—There are several varieties of *Salix cordata* in cultivation, the most notable of which perhaps is the *var. rigida*. The present Willow is really a more pendulous form of that variety, and is commonly called *S. rigida pendula*. It has the same large lanceolate leaves (measuring 4 to 5 inches in length), with a cordate base and largest stipules; and they are of a bright glossy green above, glaucous beneath. This and the ordinary variety *rigida* are amongst the handsomest of North American Willows. *W. J. Bean*.

NEW OR NOTEWORTHY PLANTS.

PASSIFLORA IM THURNII, *sp. nov.**

THE illustration we give at p. 307 shows one of the handsomest Passion-flowers we have yet met with. It was discovered by Mr. Everard Im Thurn in British Guiana, and to him we are indebted for the opportunity of examining it. It is a climbing plant, with broadly oblong acute, leathery leaves, glabrous on the upper surface, setulose below; the erect (not pendulous) flowers are between 4 and 5 inches in diameter, the sepals broadly oblong glandular at the margin, and of the "most brilliant scarlet colour, the petals are rather smaller, rose-coloured, whitish at the base when dry [purest white in the fresh state]. The plant is near to *P. glandulosa*, but is quite distinct from any other, on which account we append a technical description. Mr. Im Thurn, who speaks of it as one of the finest things he ever saw, has it in cultivation in his garden;

* *Passiflora Im Thurnii*, *Musl., sp. nov.*—Scandens cirriferis, ramis herbaceis gracilibus teretibus striatis; foliis circa 10 cent. long., 6 cent. lat., subcoriaceis superne glabris, subtus, præcipue secus nervos, setulosis cordatis 1-nerviis oblongo ovatis acutis apiculatis; petiolis 2 cent. long., antice glandulosis-increasatis; stipulis caducis; pedunculis, quam petiolis 2-3-plo longioribus ascenduntibus simplicibus 1-floris versus apicem articulis bracteisque tribus parvis instructis; floribus erectis 12 cent. diam.; tubo late infundibuliformi fere 2 cent. long., 15 mill. lat., extus glabro intus longitudinaliter striato; sepalis 5 cent. long., 12-13 mill. lat., intense coccineis, crassiusculis oblongis obtusis extus ad margines glandulis circularibus remotis onustis; petalis sepalis parum brevioribus angustioribus tenuioribusque pallide roseis intus versus basin candidis; corona faucibus duplici, serie externa o filis crassiusculis rugosis circa 1 cent. long. constante, serie interna duplo longiore basi membranacea tubulata superne contracta et in laciniis breves divisa, corona infra mediana fere ad basin tubi sita membranacea conica tubulata superne laciniata versus gynandrophorum inflexa; corona basilari brevi annulari membranacea basin gynandrophori cingente; gynandrophoro petalis parum breviori elongato gracili 5 angulato; filamentis compluribus membranaceis basi concretis medio 1-nerviis; antheris oblongis; ovario ellipsoideo puberulo stylis 8 basi æquiculis superato; stigmatibus clavato-dilatatis. Ex spec. exsiccatis. *M. T. M.*

Brit. Guiana. E. Im Thurn.

and it is to be hoped that so gorgeous a plant may soon be introduced into this country.

Mr. Im Thurn favours us with the following additional particulars relating to the plant:—"The red-and-white Passion-flower which I sent you a few weeks ago was collected by me in British Guiana, at very little above sea-level (perhaps 150 feet), but some distance in from the coast. I have been making a road from the Barima to the Barama River, through the virgin forest, over rocky, half-sandy, half-clayey ground. Where we cleared the trees, the usual crop of weeds sprang up in a few months. This weedgrowth was largely composed of an arborescent *Solanum* (*S. Demararensis*), and various species of *Heliconia*, but among these were a good many creepers, such as *Mikania*, *Aristolochia*, and *Passiflora*. Of the latter, my red-and-white one was by far the most beautiful, a really very striking thing, and was the only one which was new to me. I took plants of it, and have these growing in my garden, but have not as yet succeeded in getting seed. Another Passion-flower which was growing in the same place was the *P. pruinosa*, which was described in the *Gardeners' Chronicle* a few months ago (see p. 401, vol. xxii., N. S., 1897), and of which I sent Messrs. Sander & Co. seeds, from which that firm has contrived to raise a stock of plants. *Everard F. Im Thurn.*"

ORCHID NOTES AND GLEANINGS.

ANGRÆCUM LEONIS.

THIS interesting plant is just now flowering very freely at the nurseries of Messrs. R. Veitch & Son, Exeter. Several plants are gay with their distinct blossoms, and add a peculiar charm to the ordinary occupants of the house. Grown in baskets in a house where *Cologne cristata* in large numbers, *Cypripediums*, *Anthuriums*, &c., are well done the temperature is usually at about what one would consider intermediate. The house is span-roofed, running north and south, and as it was erected a good number of years ago, the usual practice then of wooden sashes and small squares of glass cause the house at midday to have very little need of blinds, though there is plenty of light; as the sun gets round to the south-west by 4 o'clock, a sharp heat can soon be run up, but the sun's rays then are not at all injurious. I notice one plant of this *Angræcum* with nine perfect leaves in the best of health, another with eight, and a third with seven leaves; each are flowering, one having six perfect pure white blooms, with just a slight shade of green on the column. The sweet scent observable with this, which is strongest at eventide, is doubtless a provision of Nature for the attraction of insects, who come for a taste of the nectar contained in the spur; also most helpful in the due fertilisation of the blooms.

Beside the more showy, such as *A. sesquipedale*, *articulatum*, *Sauderianum*, *eburneum*, &c., two very interesting species not at all difficult to grow are *A. Scottianum*, with terete leaves and elongated stem, having large, pure white flowers, with a spur several inches long of a pale yellow colour; and *A. pellucidum*, with bright shining leaves a foot or more in length, and producing long spikes of small white flowers, very delicate and transparent, and fragile as a thin plate of glass. The spikes, a foot to 18 inches in length, are densely covered with blossoms, and when placed in close proximity to others of the same genera, shows great distinctness and diversity. Perhaps it were better if this latter were always known by the other generic appellation, *Listrostachys pellucida*. *W. Swan, Exmouth.*

CATLEYA CITRINA.

This beautiful species, known to the natives of the region it inhabits in Mexico as *Corticoatzontecoxochil*—a terrible name for a very beautiful flower—has been in gardens for upwards of sixty years. While it is grown well by certain cultivators, others have had little success in its cultivation. It is therefore a pleasure to us to record instances of success, Sir

Chas. Strickland, Bart., of Malton, Yorkshire, whose plants were figured in the *Gardeners' Chronicle*, grows it so easily as to cause him to wonder why so many fail; so also J. T. Bennett-Poë, Esq., of Holmewood, Cheshunt, and some few others. Now comes one of the largest and most intensely-coloured yellow flowers of it which we have seen, sent by Mr. A. Chapman, gardener to Captain Holford, Westonbirt, Tetbury, who gives the information that the plant has been grown in the Westonbirt collection for upwards of twelve years, and always possesses flowers superior to those of ordinary varieties. All the segments are broad, the petals especially so, and the whole flower of very thick wax-like substance, and like others of the species very fragrant. The cause of failure is in most cases probably due to the plants being kept too warm and close after the growths are completed.

ODONTOGLOSSUM CRISPUM ROSEUM.

A first inflorescence of a beautiful form of the *O. crispum roseum* section, far superior to the original, is sent by Captain Holford, Westonbirt, Tetbury. It is of the best type, with broad segments, and represents a perfect florist's flower according to the ideas prevailing among fanciers of *Odontoglossums*. The petals are fringed, and the flowers almost entirely of a warm purplish rose colour, on which some small red-brown spots appear. A really fine form of this class is even more rare than are the blotched forms which command such high prices, and is certainly equally beautiful.

ODONTOGLOSSUM HALLI VARIETIES.

Flowers of a very remarkable series of varieties of *Odontoglossum Halli* are furnished by Joseph Broome, Esq., of Islandudno, who remarks that, though beautiful, single flowers give no idea of the handsomeness of the tall, arching flower-spikes as seen in the Orchid-house. Primarily there were two distinct types, the white-lipped, and that in which the ground colour is of a yellow colour. Of the former one resembles *O. H. Liudeni*, and of the latter several are fine forms of the *O. H. magnificum* section. In each there is variation, but all have broad petals, and segments spotted with rich brownish-red. Among the very marked variations is one with long, narrow segments, very darkly coloured, having a narrow, apiculate lip, with reddish spots down the middle, and a singular-looking spiny crest. It seems a variety of *Odontoglossum chaetostroma*, Reich. f. (*Gardeners' Chronicle*, 1883, i., pp. 562, 592). The plants were of Consul F. C. Lehmann's collecting, in Ecuador.

ORCHIDS AT BARONS HALT, TWICKENHAM.

Henry Little, Esq., may be reckoned among our oldest amateur florists and Orchid-growers. Formerly, when resident at Hillingdon, he improved the strains of *Primula*, *Cyclamen*, *Pelargonium* (both zonal and show), *Amaryllis*, and various other flowers, all of which he cultivated well, and frequently exhibited. At the same time a collection of Orchids formed one of the chief attractions to his gardens, and until a few years ago he was a successful exhibitor of these plants. Showing was then abandoned, but the collection has continued to be enriched by the best varieties procurable of the showier species of Orchids, until at the present time it contains many specimens, some of which are unique.

Cattleyas and *Lælias* make up the greater proportion of the species cultivated, and of these the collection of selected varieties of *Cattleya Mendeli* is making a grand show. Some very large and richly-coloured varieties are in bloom, the largest of them being *C. Mendeli Dorothy Little*, a grand flower of 10½ inches across; and *C. M. grandis*, a flower of very fine colour and proportions. Some of the varieties have very broadly-expanded lips, which are frilled at the edge; and one distinct form has a bluish white veining running through it, while another has pure white sepals and petals, and vivid carmine-crimson lip.

With the *C. Mendeli*, some good are in bloom of forms of the fragrant *C. Schodereri*, of *C. Schilleriana*, *C. Skinneri*, and a superb form of *C. Skinneri alba*, which seems to have larger flowers than the type,

and to be of a different stamp to the ordinary forms of *C. Skinneri alba*; *C. intermedia*, and others. Showing well for bloom are several good specimens of *Cattleya Mossiae*; and remarkable for fine culture is a batch of very strong *C. Bowringiana*, which is a plant Mr. Howard, the Orchid-grower, finds very easy to grow, but requiring great care to prevent water lodging in the young growths until they at least get well up. A fine batch of selected varieties of *C. aurea* comes next, and here Mr. Little's plan of recording his fine varieties by drying the flowers in a book, which by the accompanying index renders examination of them easy, is at once apparent. Some curious variations, especially in the colouring of the labellum, was shown, some of them being almost wholly of a rich orange, with a few purple markings, while in others the purple predominated, and the orange was confined to the veining. *Cattleya labiata Warneri* grows well, and flowers profusely here, even the small plants sending up flower-sheaths, and one of the large specimens bears annually from twelve to twenty magnificent flowers. One of the reasons for the floriferousness of this and other *Lælias* and *Cattleyas* is, that the plants are exposed to the sun pretty freely, care being however taken to guard against burning.

Lælia purpurata is beginning to give evidence of what will be a magnificent show, for all are sending up flowers, and they consist of a few very large and richly-coloured varieties. But one of Mr. Little's favourites is his variety of *L. p. Schroderiana*, a large white flower, with but a little colour on the lip, and very fine purple tracing in the throat. *Lælio-Cattleya* × *elegans* and *L.-C.* × *Schilleriana* have been collected for years whenever a fine variety could be obtained. A few are in flower, the best being *L.-C.* × *elegans Littleiana*, which is grand in form, and of a dark ruby-purple colour. Of other remarkable things in bloom in the intermediate-house is a noble *Cattleya Lawrenceana*, with seven richly-coloured flowers on a spike; some good examples of *Dendrobium thyrsiflorum*, of which the tall-growing *D. t. Walkerianum* is a fine show-plant; *Lælia Latona*, *Epidendrum Wallisii*, and other showy species.

Planted out in a warm corner are numbers of plants of a noble form of *Vanda teres* with very large, and beautifully-marked flowers, which the plants are sending up profusely. With them are several plants of white *Vanda teres* obtained from different importations, and a very singular species imported as *V. teres*, but which has a flower botanically distinct from it, if it retains the form seen in the first bloom. The rare hybrid *Vanda* × *Miss Joaquim*, and also *V. Hookeriana*, which has been cross-fertilised, grow and flower in the most satisfactory manner.

Among the *Cypripediums* in flower are the curious natural hybrid, *C. × Littleianum*, imported with *C. tonsum*, *C. villosum aureum*, *C. Curtisii*, *C. × superciliale*, *C. × selligerum majus*, *C. Chamberlainianum*, a batch of good *C. exul*, *C. Druryi*, &c., and with them are a few *Phaænopsis*, which here, as in some other places, are the least satisfactory plants, although at Hillingdon Mr. Little grew them very well.

In other houses are prominent a finely-bloomed batch of plants of *Odontoglossum citreum*, some of *Miltonia Roezli* and *M. vexillaria*, and in a cool lean-to grand specimens of *Cymbidium Lowianum* are making a grand display of bloom, all being of good quality, two of the varieties very remarkable for the large size, and rich colour of the flowers. A nice plant of *C. Tracynum* is in the same house, and one or two more of it are expected to be among unflowered plants. One house contains a fine batch of *Cologne cristata*, and a grand specimen of *C. c. alba*, and in others are many examples of good culture.

The whole place is interesting, and it is called Barons Halt because the site of the gardens has been identified as a camping-place of the Barons on their way to the signing of the Magna Charta. Like so many Orchid lovers, Mr. Little prefers bulbs and herbaceous perennials, instead of bedding plants in the open garden, and a fine display has been made with thousands of *Narcissus* and *Tulips*, which will be followed by *Pæonies*,

Delphiniums, Iris, &c. Adjoining the house and conservatory Mr. Little has constructed a fine suite of luxuriously furnished studios and retreats, which are filled with interesting pictures of his Orchids, taken by himself, and of mementos of travels in Algiers, Italy, and other places.

CULTURE AND VARIATION.

My attention has recently been called to a work published some time since by the Rev. G. Henslow, entitled *The Origin of Plant Structures by Self-adapta-*

tion to the Environment, precisely because it began then to be found that our wild Ferns, which grow in such profusion in our western counties, and are sparsely or abundantly existent all over the British Isles, were peculiarly liable to "sport," i.e., vary, such variations often greatly enhancing the natural beauty of the plants, or adding curious though constant features quite alien to the normal plan. As time went on, a number of persons of high and low social position made a hobby of the quests and collection of these forms, and eventually not only were forms of greater abnormality and beauty obtained by selected

closely resemble each other to be discriminated. The figures given show, therefore, a large majority of wild finds, and there is ample evidence existing that the record is reliable. This may then be considered in the first place as fairly good evidence that variation does occur in wild plants, and the only thing that remains to demonstrate is that this variation is indiscriminate (or indefinite) in order to give Darwinism another chance. Here the first difficulty is to define indiscriminate, but I presume in this connection is meant variation, which does not arise through self-adaptation to the environment, but to all appear-

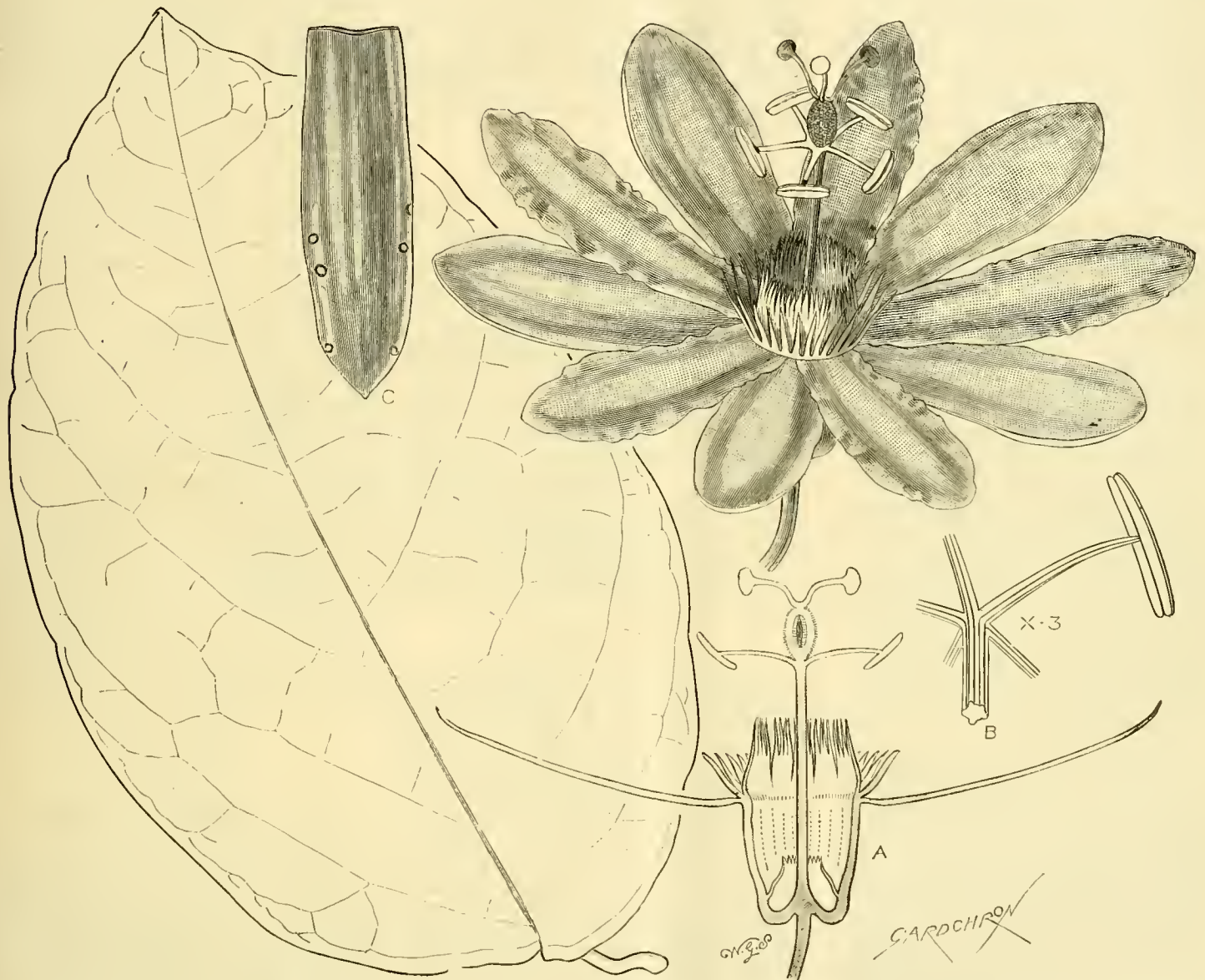


FIG. 114.—PASSIFLORA IM THURNII: COLOURS OF THE FLOWERS SCARLET AND PURE WHITE. (SEE P. 305.)

A, Longitudinal section of flower and ovary, nat. size; B, Anther, magnified; C, Sepal, nat. size.

tion to the Environment. In this a quotation is made from a private letter of the late Professor Romanes to the effect that "if you could prove that indiscriminate (i.e., indefinite) variations have not occurred in wild plants, but only under cultivation, you would destroy Darwinism *in toto*," and it is endeavoured to prove this by the evidence put forward. Now, as regards this particular question of variation, and wide variation under perfectly natural conditions, i.e., altogether apart from cultural influences or artificial environments, there is probably no better evidence existing than that collected by British Fern specialists during the last thirty or forty years. This particular branch of plant biology became highly popular about

culture; but in these later days combinations have been produced by crossing which have finally disposed altogether of the once vexed question as to the capability of cryptogamic plants being crossed or hybridised. This branch of the subject comes, however, under the head of culture, and is, therefore, to some extent, outside my theme, but not altogether so, for notwithstanding all the efforts of the cultivator as compared with those of the hunter for purely wild varieties, the latest catalogue of known varieties (Mr. E. J. Lowe's) records no less than 1119 wild finds out of 1859 varieties described, to which former number must be added many varieties which have been repeatedly found, and too

ance quite arbitrarily. Assuming this, it may be pointed out that very densely crested Ferns, such as *A. f.-f. acrocladon* and other marked sports of same class, are heavily handicapped by two factors, viz., the crested detracts from their height, rendering them extremely liable to be overgrown as seedlings, and hence ousted out of existence by their robust normal companions; and secondly, the crests are extremely liable to be broken down by rain accumulating therein, and this, of course, is, in the long run, another disadvantage. A heavily-crested *Athyrium* found by the writer in Ireland had evidently been dwarfed so much by this process that it was only a few inches high in a spot where the

normal form was robust; it was much broken when found, evidently by weather. Subsequently, when removed from the spot of origin, so far from its having been shaped to fit its environment, it at once asserted the contrary by assuming a robust growth, and has finally become a fair-sized specimen, with much-communited tassels at all tips. Another point in this plant is an extra brittleness, also a varietal feature, but by which also, as we have seen, it suffered in its natal environment instead of benefitting. Surely such variation as this, or any sort of variation, indeed, which handicaps a plant instead of aiding it in the struggle for existence, must be "indiscriminate" in the sense of evincing lack of discrimination [sensitiveness]. Again, what advantage is reaped by a plant being rendered utterly barren, a phase of variation not uncommon, and often accompanied in Ferns by considerable enhancement of their beauty? Such plants are found here and there among their fertile companions, and it would be impossible to define any difference of environment, nor is it conceivable how such a variation, which is definite enough in its character, can be in the direction of adaptation to such environment, if the preservation of the species be the object in view.

As regards the relative variability of plants under culture and under natural conditions, the search for and discovery of these abnormal forms of Ferns leads irresistibly to the conclusion that the difference is more apparent than real. That there is much variation in wild plants is shown by the Fern catalogue above cited; and it must be borne in mind that these are generally found as single individuals massed together with all sorts of other plants or species of Ferns in unfrequented places, and that a specially keen eye and great perseverance are needed to find the one "sport" among the tens of thousands of normal forms peopling the same locality. Such finds are often only visible by a projecting tip among a crowd of robust normals, a result of the handicapping already alluded to. Cultivated plants, on the other hand, are under observant and experienced eyes from the spore or seed to the adult stage; and being furthermore classified and isolated, the chances are all against any variation escaping notice. Plants, too, which have once broken normal bounds, are eminently likely to vary again, and it is precisely these that are brought under cultivation and their offspring most carefully watched. Here, however, any elective breeder will confirm that the variation is usually as indiscriminate or indefinite as it well can be, the perfect types being only arrived at by exhaustive weeding-out.

If the environment is a guiding factor, and every variation favoured the individual plant, we should naturally expect to find spreading colonies of varietal forms in localities virgin to the Fern-hunter, but in the immense majority of cases, the fronds are solitary, though the individual plants be often old and well-established, and fully fertile, and thus have had countless opportunities, through their offspring, of their special adaptation to their environments, had such really existed. If we go outside the realm of plant-life and study variation in the animal kingdom, we find the same general divergence often yielding types less fitted to these environments than the normal, so that unless cared for artificially, they sooner or later perish.

Variation in shoots, so far as human comprehension at present extends, appears to be embodied in endless vagaries, upon the underlying causes of which it is useless to dogmatise. It is certain, however, that the hunter for wild Fern varieties will be the last man to accept the theory that indiscriminate (i.e., indefinite) variations have not occurred in wild plants. In making this assertion the writer speaks for himself, since in his experience in Ferny districts, daily finds of definite sports may be confidently counted upon. A return home quite empty-handed forms a rare exception, two or three per outing being the rule; while the quest, be it remembered, is always carried on as far from the haunts of men as possible, so that the factor of culture is utterly eliminated. *Chas. T. Drury, F.L.S., V.M.H.*

KEW NOTES.

GREVILLEA FASCICULATA.—This is a beautiful greenhouse plant, equal at least in decorative value to the several species of *Grevillea* grown in gardens for their flowers. It has been in flower at Kew for a month or more, and is still attractive with its compact elegant bushy habit, small narrow grey-green leaves, and numerous axillary umbels of bright scarlet and yellow flowers. The Kew plant is 2 feet high, but according to the description in the *Flora Australiensis*, it attains a height of 4 feet, and is erect and bushy. For its possession, Kew is indebted to Mr. J. H. Veitch, who presented seeds of it among a collection brought by him from Australia in 1893. There is a figure of the species in *Bot. Mag.*, t. 6105, prepared from a plant flowered in Mr. Wilson Saunders' collection in 1873. It also appears to have been sent to Kew by D. Baxter, when collecting in Australia in 1829. Of the 150 species of *Grevillea* known, scarcely half-a-dozen rank among first-class greenhouse plants, but among these I would certainly include *G. fasciculata*.

DRYANDRA CALOPHYLLA.

This is a strikingly handsome species of a genus of Australian Proteaceæ which fifty years ago figured prominently in botanical collections, but which are scarcely known in cultivation now. According to John Smith, there were seventeen species of *Dryandra* at Kew in his time, and they were "bushy plants 3 to 5 feet high, some of them stemless, and forming a compact hemisphere of rigid leaves 3 feet high and wide, and thirty-eight years old." *D. calophylla* belongs to this dwarf section of the genus. It is represented in the Temperate-house at Kew by a plant 2 feet across, composed of numerous semi-pinnate, rigid leaves, from 12 to 18 inches long, dark-green above, glaucous-green below; when young they are covered with a rust-coloured tomentum. In the centre of the rosette of leaves is a large short-stalked thistle-like flower-head surrounded by floral leaves, the head proper consisting of a large number of styles and stamens, whitish with a tinge of rose. This plant was raised from seeds presented to Kew by Mr. J. H. Veitch in 1893. A figure of it has been prepared for the *Botanical Magazine*.

FELICIA ECHINATA,

is a shrubby Composite with the habit and foliage of a *Lasiophon*, and terminal heads of purple and yellow Aster-like flowers, $1\frac{1}{2}$ inch across. It has lately been introduced to Kew from S. Africa, where it is a native, by means of seeds sent by Mr. W. Armstrong of Port Elizabeth. It promises to be a useful shrub for the greenhouse, the habit of the plant being good, and the flowers, which are developed in spring, showy. The genus *Felicia* consists of about twenty species of South African herbs or shrubs which used to be included in *Asters*. Several species used to be cultivated in greenhouses, in Miller's time for instance, and one *F. (Aster) fruticosus*, is still included in lists of cultivated plants, but I have never seen it alive. A near ally of *Felicia* is the genus *Agathæa*, also South African, and which also used to be included in *Aster*. It is represented in gardens by *A. cœlestis*, the blue *Marguerite*, cultivated by Miller a century and a half ago, as *Cineraria amelloides*, and for a long time lost until re-introduced through Kew about fifteen years ago.

DIDIERA MIRABILIS.

A healthy young plant of this extraordinary introduction from Madagascar (see p. 170), has lately been added to the Kew collection through the generosity of M. Grandidier. Its successful introduction is highly creditable to the French horticulturists concerned.

ARCTOTIS VIRGATA.

Good seeds of this have lately been received at Kew from South Africa, with the following note:—"It bears large and handsome flowers of that delicate shade of pink typified in the La France Rose, is a free bloomer, has a long flowering season, and grows easily. You will be delighted with it."

CANNAMOI VIRGATA,

has also been received from the same country. "It is about the most striking of all the *Restiaceæ*, and I wonder it has not been introduced before. In a bed of a small ravine in the mountains here it forms a dense mass 30 yards wide, and 12 to 15 feet high. Dried specimens give one but a poor idea of the beautiful golden bronzy inflorescence of the male plant. It likes plenty of moisture."

LIBERTIA IXIODES.

This is a pretty spring-flowering Irid related to *Sisyrinchium*, and which deserves to be popular as a greenhouse plant. There is a good example of it among the New Zealand plants in the Temperate-house at Kew, where it is grown in a pan, and has formed an elegant grass-like tuft of bright green leaves each a foot long, from amongst which spring numerous slender erect scapes 18 inches long, each bearing a raceme of from six to nine flowers which are flat and Ixia-like, pure white, and an inch across. Another species also in flower is *L. grandiflora*, which has longer more rigid leaves, tinged with brown at the base, whilst the scapes are shorter, and the white flowers smaller. I lately saw in the Ghent nurseries plants which I was informed are known there as *Magnetia bicolor*, but which are certainly a *Libertia*, probably the variegated form of *formosa* known as *bicolor*. These *Libertias* are pretty, easily grown plants, and they always flower freely in the early months of the year.

Other noteworthy plants now in flower at Kew are *Rosa berberidifolia* and *Lathyrus splendens*, which grow side by side in a sunny greenhouse, their roots revelling in a bed of loamy soil; *Acalypha Sanderi*, a large and beautiful specimen recently obtained from Messrs. Sander & Co.; *Solanum Wendlandi*, now a cloud of big clusters of bright lavender-blue flowers, hanging over the tropical Water-lilies, and having for its companion *Bignonia Tweediana*, whose big yellow flowers are set in a curtain of dark-green foliage; *Epiphyllum Gartneri*, a beautiful plant, very floriferous and striking in colour, and of much sturdier constitution than the other *Epiphyllums*; *Conandron Ramondioides*, several panfuls with large crinkled bright green leaves, and numerous racemes of elegant pink-tinged flowers. The effort to obtain a cross between this and its near relation *Ramondia* failed, the seedlings being pure *Conandron*; and *Begonia Gloire de Lorraine*, which has been beautiful with flowers since November. *W. W.*

BELGIUM.

REMINISCENCES OF GHENT.

(Concluded from p. 292.)

M. Alf. Van Im Schoot's Orchids.—As foreshadowed by the interesting display of Orchids shown by M. Van Im Schoot at the Casino, we found the collection at his pretty homestead at Mont St. Amand replete with good things, and containing perhaps the greatest number of species of botanical interest of any amateur Belgian grower. In the first house were some tall specimens of *Elleanthus capitatus*, a rare species of *Sobralia*-like growth, and also some of the showy *Sobralias*; in flower being a number of plants of *Miltonia vexillaria*, *Ada aurantiaca*, the singular scarlet-lipped *Epidendrum pseudoeidendrum*, *Brasias*, *Cymbidiums*, &c. In the end of the range were a very pretty batch of *Bertolonias*, and a number of rare species of *Cirrhopetalums*, *Bulbophyllums*, &c.

In the next range the *Odontoglossums* were making a show with good varieties of *O. crispum*, *O. Pescatorei*, *O. triumphans*, *O. luteo-purpureum*, *O. Rosii majus*, *O. Cervantesii*, *O. cirrosium*, &c.; and some few *Masdevallias*, including *M. × Heathi*.

In the hottest house, in which such fine old plants as *Cyrtoceras reflexum* were in bloom, were more rare *Cirrhopetalums* and *Bulbophyllums*, *Vandas*, *Aërides*, and other warm-house plants, some of the *Dendrobiums* being in bloom. At one end was a gigantic specimen of *Grammatophyllum speciosum*, with stems over 8 feet in height. In the Cattleya-

house some good forms of *C. Trianei* were in flower, and other *Cattleyas* and *Lælias* well set with flower-sheaths.

In the vinery were a number of showy greenhouse plants, which used to be favourites also in this country many years ago, such as *Eriostemons*, *Tremandras*, *Brachysemas*, *Diosmas*, *Pleroma*, *Thibautia*, *Heterotoma lobelioides* covered with showy flowers, and many other interesting things. Outdoors a large garden of trained Pears and other fruit trees are finely cultivated, and promise well for fruit. M. H. Sulle, the gardener, well cares for his interesting charge.

M. Ed. Pynaert Van Geert.—Both the proprietor of this large and trimly-kept nursery at the Porte de Bruxelles and the establishment itself are perhaps better known to British visitors than any other Belgian nursery. Go when you will, there is always an interesting and varied collection of plants to see, and also a fair show of novelties. In the spring-time the

little plants of the white and green *Pandanus Veitchi* a very charming set of new varieties of *Azalea indica*, and some very showy *Anthuriums*.

Louis Van Houtte, père (Soc. Anonyme).—The name of Louis Van Houtte was formerly associated with the most interesting and varied collection of plants, embracing also a fine collection of bulbous plants. But time changes all things, and among others the fashion in plants; and, consequently, this fine nursery, on its new foundation, turned increased attention to decorative plants, and abandoned many others which had probably attracted insufficient buyers to make them profitable. At present there are grown numbers of showy species of Orchids, such as *Odontoglossums*, *Cattleyas*, *Lælias*, *Cœlogynes*, &c., and very well grown the stock appears to be. As a reminder of former times, we found in one of the houses in flower the rare blue *Amaryllis procera*, a number of rich scarlet *Hemanthus multiflorus* *Kalbreyeri*, and some good *Hippeastrums*. One

of colour, but scarlet predominating; and a fine lot of *Odontoglossums* in remarkably good condition, and flowering well. Among foliage plants, *Dracæna Sanderiana* was well represented, and one house was very effectively displayed with *Anthuriums*, *Cypripediums*, and foliage plants.

De Smet Frères.—At the entrance one is struck by the grand alley of pyramidal Bays, which usually runs from the entrance-gate. On the occasion of our visit their ranks were being somewhat broken, the packers being at work on some of the finest, to send them over the sea. The front of the nursery was bright with *Azalea mollis* and other early flowers, and throughout the seemingly endless ranges of glasshouses the stock was in the most vigorous condition, and neatly kept. *Araucaria excelsa* appears by thousands of all sizes; so numerous are the plants of it that it causes one to wonder what becomes of them all. And yet if you put the question, you always get the same answer, "We never have too many!" Range after range of neat little plants of it appear, one range being filled with cuttings, each under its own bell-glass. Here also the usual species of decorative plants are grown, and house after house of Palms were noted. The houses contained a large number of graceful plants of *Cocos Weddelliana*, which is not now met with in such great numbers as formerly. Stove plants, and especially those with variegated foliage, are extensively cultivated, and a sturdy lot of *Odontoglossums*, and some other Orchids were observed.

Société Horticole Gantoise.—Under the able direction of M. E. Wartel this very extensive and well-kept establishment in the Chaussée de Courtrai has made great headway. Their numerous and fine exhibits at the great quinquennial show doubtless attracted many visitors to the nurseries, and if they were not satisfied with what they saw there they were very difficult to please. Few nurseries can boast of such a large and varied stock of new and rare plants, and in every case the plants are cultivated up to their best. It is therefore a relief after passing through houses filled with a fine stock of the usual decorative plants to come upon some of the warmer houses filled with rarer kinds. Here was a fine stock of a charming new Palm named *Johannia Veitchi*, with graceful, arching foliage, borne on curiously freckled stalks; also a very good batch of pretty plants of *Latania rubra*, long known as an occasional plant, but seldom seen in such condition and quantity as here. Another handsome and still rarer species noticed in quantity was *Phœnicophorium seychellarum*; and *Livistonia rotundifolia*, *Licuala grandis*, *Kentia Lindeni*, *Phœnix Roebelinii*, the singular *Wallichia oblongifolia*, and other rare species, were well represented. *Crotons* and *Dracænas* were in large quantities, and of beautiful colour. Of the *Dracænas*, *D. Warteli*, *D. Sanderiana*, and *D. Godseffiana*, were the most striking of the distinct sections they represent. Among the many showy *Anthuriums* sending up their coloured spathes in great profusion, were several of new and distinct features, and among the *Bromeliads* was a batch of a new *Vriesia* of the *V. splendens* type with green, purple and cream-coloured bars on the foliage, and a very showy scarlet inflorescence. The *Azaleas* were making a most brilliant display; and in the houses devoted to *Kentias*, we noted a quantity growing on for the Paris market with five plants in a pot—a tall one in the centre and small ones around it. These are said to sell well in France.

In the open ground were remarked a large stock of Bays, *Dracæna australis*, and other decorative plants.

SPATHOGLOTTIS × AUREO-VEILLARDI.

OBTAINED by crossing the species specified by its name, this pretty hybrid affords striking evidence of the useful work done by the hybridist in raising new garden Orchids, for it supplies not only a new plant worthy to be grown with the best of the species, but a perfect gem in the elaborate colouring of its neatly-formed flowers, which are not only very attractive at first sight, but well repay careful examination. The plant was first exhibited by the raisers, Messrs. Jas.



FIG. 115.—SPATHOGLOTTIS AUREO-VEILLARDI.

front garden is bright with Tulips and Hyacinths, and this spring the beds were also decorated with the bright and softly-tinted *Azalea mollis* in flower, and the lofty Palm-house and corridor beside the plant houses further contained a brilliant display of them, as well as of the richer-coloured varieties of *Azalea indica*.

In the Orchid-houses there was a good show of *Odontoglossums*, *Cattleyas*, and other showy species, the house devoted to *Cypripediums*, which are a specialty here, having some fine hybrids in bloom, among which we noted *C. × nobilior* (*villosum* × *Haynaldianum*); and a very curious hybrid with shining pallid flowers, obtained by crossing *C. Mastersianum* and *C. Leeatum*. Another singular variety was a hybrid of *C. Chamberlainianum*, and some good *C. exul*, *C. Leeatum*, *C. Rothschildianum*, &c., were in bloom, notwithstanding that the prize collection of *Cypripediums* was on exhibition at the Casino. The decorative Palms, *Araucarias*, &c., grown by the thousand, were in fine condition; and noteworthy among the pretty subjects shown in good batches were the variegated *Sibthorpia europæa*, the tricoloured *Saxifraga Fortunei*, a great quantity of neat

house was filled with showy *Anthuriums*, many with very compact little plants of *Camellias*, and still more with bushy *Azaleas*, a grand lot of them of all shades of colour being in flower. Then follows house after house of *Kentias*, *Latanias*, *Phœnix canariensis*, and other decorative Palms, &c. At this nursery also there is a very extensive culture of plants in the open air. Sheltered by frames are many interesting bulbous plants, terrestrial Orchids, &c., and a grand lot of the *Myosotidium nobile*, otherwise the New Zealand Forget-me-Not.

Louis de Smet.—Here on entering one is struck by the immense quantity of Bay-trees in tubs, and specially pyramid-trained specimens, which, contrary to the usual custom, seem to predominate. Great care must have been taken with the culture of these fine and useful specimens. In the larger houses are huge Palms for decorative purposes, and in the smaller ones thousands of *Kentias* and other Palms; and several houses were filled with fine specimens of *Araucaria excelsa*. Among other plants remarkably well cultivated at this nursery, we noticed a great number of *Anthuriums* with spathes of various shades

Veitch & Sons, Royal Exotic Nursery, King's Road, Chelsea, at the Temple Show, 1897, when it was a very small plant; but it succeeded even in that state in securing an Award of Merit.

Messrs. Veitch again exhibited it as a much stronger specimen (see fig. 115) at the Royal Horticultural Society on May 10 this year, when the Orchid Committee unanimously voted it a First-class Certificate. The ground colour of the flowers is of a clear, pale chrome-yellow, the sepals slightly, and the petals profusely, dotted with crimson, and the reverse of each segment shaded with the same colour. The front lobe of the lip, and the tips of the side lobes are also of a rich crimson colour, and the base of the lip is minutely dotted with red.

THE WEEK'S WORK.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Bedding-out Arrangements.—The time has arrived when the work of bedding-out the plants for summer display may begin, provided all the necessary preparations have been made. In that case, nothing need now impede the work where spring bedding is not indulged in. The recent rains will have moistened the soil and brought it into a fit condition for the reception of the plants, and the plants will soon take root. Make sure that no plant is set out that is in a dry condition at the root, or not properly hardened off. To touch upon the innumerable designs of beds and the arrangement of the plants would occupy too much space in these columns, and such matters must be left to the individual fancies and tastes of owners of gardens and their gardeners; still, there is one matter that I may mention, which is, the use of plants in regard to the colours of the flowers or foliage. Make up your mind whether you will have harmonies or contrasts of colour, and do not attempt both in the same bed or even in the same design, or the result will be offensive to persons of taste. Another thing to avoid is, that of having a great mass of colour in one bed without something being planted to tone down its crudity. For small beds, two colours are sufficient, and in big ones three or four are ample. When a ground-work plant is used, care must be taken to have its colour contrast with the other plants employed; as for instance, a bed of Flower of Spring Pelargonium becomes very effective if some blue *Viola* is used for the ground-work, and the bed is edged with the yellow-flowered *Antirrhinum* Tom Thumb. A large bed may be planted with *Hyacinthus candidus*, and *Lobelia cardinalis*, (Queen Victoria, or others; a light blue or yellow *Viola* being used for covering the soil, the edging consisting of *Lobelia compacta*, or a dwarf, white-flowered *Antirrhinum*. Let special attention be paid to the heights the various plants reach, and plant accordingly.

Carpet-Bedding.—The designs should be marked out with white sand, and the hardier subjects planted first, the tenderer *Coleus*, *Alternanthera*, &c., being planted in the first and second week in June. Fibrous-rooted *Begonias*, if seed was sown as advised at the beginning of the year, will have become of good size; and as the flowers do not come all of one colour from seed, it is advisable before planting-out to sort out the various colours, and plant these separately. These plants must be gradually hardened off, and a few branches of *Yew*, &c., placed around the edges of the beds for several days after planting. The soil for *Begonias* should receive a good dressing of leaf-mould, and the planting out be delayed as advised for *Coleus*, &c. The beds should be in a sheltered place, as the wind plays havoc with the foliage. This remark applies also to the tuberous-rooted varieties likewise. *Cannas*, *Ricinus*, *Nicotiana*, *Datura*, *Aralia*, *Grevillea*, *Eucalyptus*, and other sub-tropical plants, should not be planted before the middle of June, when, with the exception of the *Cannas*, a new stake should be placed to each as soon as planted.

THE KITCHEN GARDEN.

By J. W. McHATTE, Gardener, Strathfieldsaye, Hants.

Carrots.—Where the seed was sown in drills—and this is the better method for a main crop, let the young plants be thinned out to 3 inches apart, and afterwards afford the land a slight dressing of wood-ashes or charred garden-rubbish in a finely-sifted state. Another large sowing of Scarlet Model, Red Surrey, or the Altringham Carrot may be made, and also one

of the Short Horn Carrot in smaller quantity. In June the Carentan, and other short-horn or stump-rooted varieties, may again be sown for affording an early winter supply.

Spring-sown Onions.—When Onion seed has matured properly, as ordinarily sown it comes up too thickly, rendering a good deal of thinning necessary; but some portion of the crop should be left unthinned, the operation of thinning being carried out by the daily drawing of plants for kitchen use. The remainder of the crop may be treated in one or two fashions. If big bulbs are required for certain culinary purposes, or for show, they should stand at 8 or 9 inches apart; and if moderate, more useful sizes are the aim of the gardener, the bulbs may be so thinned that when they are ripe they will just stand clear of each other. Some gardeners, knowing the waste that takes place in the kitchen sowing the seeds thinly, and let all grow away together unthinned. This method affords bulbs of sizes suitable for a variety of uses, and is, perhaps, the most economical method. When thinning, let all weeds be pulled up carefully, so as not to disturb the Onion-plants; and in dry weather keep the Dutch-heel in use between the rows. Remove the flower-stalks from autumn-sown and transplanted Onions not intended to produce a crop of seed, and make a small but thick sowing of the Silver-skinned Queen Onion on hard, not over-rich ground.

Seakale.—At this season the flower-stems usually show abundantly, especially on plants of more than a year old, and these must be removed by cutting them off low down, but taking care not to injure the leaves; and to keep the land clean with the hoe. Seedlings should be thinned to 5 inches apart; the thinnings, if carefully drawn, will do for planting elsewhere, or filling vacancies. Dress all Seakale land with agricultural-salt and wood-ashes, not forgetting such of the roots as have been forced in the open under pots.

Winter Brassicas.—Where seeds have been sown thickly it will be prudent to lift and prick out Brussels Sprouts, Broccoli, Cabbage Tronchuda, Kales and Savoys in variety, before they get attenuated and long-stemmed. A distance of 5 inches apart in the nurse-beds will suit most of the kinds, provided permanent planting is done in June and early in July. A sowing of the Walcheren and Early Penzance, and of late varieties of Broccoli, may now be made. The first two will prove useful late in the year, and the latter will prolong the supply in early summer next year.

General Remarks.—If the sowings of Beetroots, Parsnips, and Onions have partially failed, the plants where they happen to grow thickly may be transplanted to the vacant spots in the rows, planting them not deeper than they were previously. When the spring-sown Spinach is usable, and in sufficient quantity to meet the demand, the autumn-sown Spinach should be turned in, Spinach being an exhausting crop. Clear the land of exhausted crops of all kinds, which, if left, have an untidy appearance, and take much plant-food out of the land.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Biford, Dorking

Thunias.—T. Marshalli, T. Bensonae, T. Veitchiana, T. alba, &c., are now in the middle of the growing season, and require abundance of root-moisture. These plants will soon produce their flower-spikes, and as soon as these appear, an alternate application of weak liquid cow-manure will assist them greatly. Until the flowers open, keep the plants on the sunny-side of the house; they should then be removed to a cooler and more shady position. Such *Pleiones* as P. maculata, P. coucolor, P. lagenaria, P. Wallichiana, are also growing freely at this period, and at such time it is almost impossible to afford them too much water. An occasional dose of liquid-manure will strengthen the leaves, and increase the size of the bulbs. *Pleiones* do well at the cooler end of the Cattleya-house, exposed to considerable direct sunshine, and with plenty of fresh air circulating freely around them. Each afternoon at closing-time let the plants be syringed under the foliage.

The Odontoglossum-house.—At this date *Odontoglossum* form a great attraction, plants of O. triumphans, O. hystrix, O. luteo-purpureum, O. Hallii, O. sceptrum, O. Pescatorei, O. excellens, O. nevadense, and many other species and varieties being in flower. Whilst the plants are making growth and perfecting their flower-spikes, the usual practice, when damping down in the afternoon is to close the top-ventilators for a few hours: but now that most of the plants are in bloom damping-

down should be discontinued, the flowers being liable to get spotted, more especially in mild and damp weather. The last thing at night, air should be admitted in small amount at the top of the house, which will suffice to let much of the humidity escape. The degree of warmth at night may stand at 54°, and it may fall to 50° or 51° by the morning without ill effects. If the morning is sunny, damp the floors and syringe the stages and between the pots, and as the temperature rises increase the quantity of air. If the weather be dull or rainy, many growers damp only the paths and under the stages lightly. Where many such species are grown some of them will be making growths, and must have close attention. When any plant of the species above mentioned ceases to flower, moisture overhead or at the roots must be cautiously afforded; and all such plants should be kept apart from the others, and induced to rest by keeping their surroundings less moist and the compost moderately drier. Tyros should know that *Odontoglossum* are ruined by carrying their flowers for two or three weeks, and by flowering them too often. Unless plants are wanted for certain purposes their spikes should be cut off after being open on the plants for a reasonable length of time, and used in indoors decorations. Those who possess any of these plants should therefore remember that strong vigorous growth in every plant should be the aim of the grower, and excessive flowering be avoided. These points are applicable also to *Oncidium crispum*, *Marshallianum*, *Forbesii*, *curtum*, *concolor*, *varicosum*, and others. Plants of *Odontoglossum grande*, O. fusleyi and its variety *leopardinum*, now starting to grow, may be afforded more water at the root, but taking care not to allow any to lodge in the young breaks or these may decay. O. hastilabium, which is a plant that is now in growth, should be placed in the cooler part of the Cattleya-house in order to afford the flowering-breaks strength.

HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belyo Castle, Grantham.

Gooseberries.—Owing to the extremely droughty weather that prevailed in most parts of the country during March and April, the Gooseberry-bushes will probably be suffering from attacks of red-spider; and those that are weak suffer first, or most severely, from spider, and the pest eventually spreads from such to younger bushes, and is then with difficulty eradicated when once fairly established in a plantation. An attack weakens the bushes very much after a time, reducing the size of the fruit considerably. Red spider is usually most abundant on the under-surface of the leaves, and is difficult to dislodge unless a syringe with an elbowed rose-jet be used to conduct the stream of water to that side of the leaves. Owing to the tender skin of the fruits at this date, it is not prudent to apply strong insecticides, and a sand made with the best soft-soap at the rate of 4 oz. to the gallon of rain-water is the safest. This should be applied with a syringe during dull weather to the under-side of the leaves and branches, and it has most effect if it be allowed to remain on the leaves and shoots; a second syringing taking place after an interval of four or five days. When Gooseberries are required for cooking purposes, the bushes must be well syringed with clear water the morning following the dressing, and the fruits be also washed before cooking them. Old bushes, if badly-attacked by red-spider, should be grubbed-up after the fruit is gathered, that is, if they can be spared. Strong healthy bushes may be greatly assisted to recover from an attack by applications of liquid-manure to the soil at intervals of a fortnight, and by gathering all the fruit in a green state. The Gooseberry benefits by high feeding when it is carrying a heavy crop of fruits, and it is a practice with many of the Kentish growers to form a basin around each stem when the fruit is about half grown, and to place night-soil therein, turning the dug-out earth over it; and by this means very heavy crops are obtained. After much of the green fruit is gathered from a bush, the foliage will have got firmer, and better able to withstand a solution 50 per cent. stronger than is prudent to give it at an earlier stage. Bushes much infested are sure to be in a worse state the following year unless preventive measures are persevered in, the insects hybernating beneath the bark.

Pears.—This fruit-tree forms a favourite feeding-ground for numerous insects and the larvae of moths, &c. The leaves are disfigured and injured by a minute acarus, *Phytoptus Piri*; then plant-lice, *Aphis*, attack the leaves, viz., A. Piri, A. Mali, which cause honeydew. These last are best destroyed by Tobacco-water, or Quassia-water at

this season, and by white-washing with lime in the winter has a good effect. Scale insects affect the trees, and the best means is the last named, only using skim-milk instead of water, and some clay to give it body. In the folded-up leaves live the larvæ of *Chimabotia brumata*, a little winter moth; and several Tortrix, and *Ornix petiella*. On the expanded leaves there are *Ornix guttata*, and the gall-fly, *Cecidomyia Piri*. These are the commoner forms of insect-life on our Pear-trees, and they must be sought for and destroyed by the various means known to gardeners. The garden-engine, used with or without insecticides, is capable of doing much to keep a Pear-tree in health, especially if means be taken to feed the plants by manurial dressings, and to maintain health by affording water at the root if there is a suspicion that the soil lacks moisture.

Weeds.—The rains have caused weeds to grow fast, and advantage should be taken of a dry state of the ground to pass the Dutch-heel over all vacant spaces and between the rows of plants, bushes and stools. Dandelion, Dock, Couch-grass, Thistles, Bindweed, and Plantain, should be dug out entire with hand-forks. These are noxious weeds in fruit plantations, and the most difficult to eradicate in such places, although persistent cutting off the tops as fast as they show will destroy them eventually.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Euphorbia pulcherrima (Poinsettia).—Cuttings made from soft shoots, or from eyes, may, when well rooted be shifted into 60's, employing a compost for them of fibrous loam and peat, and leaf-mould in about equal proportions, and adding to these sharp sand sufficient in quantity to make the soil properly porous. The potting should be done firmly, and the plants put close to the glass. For two or three weeks after repotting let them remain in the stove, and afterwards afford intermediate-house treatment. Good heads of flower bracts may be obtained from plants confined to a single stem, and grown in 6-inch pots; but if large specimens are required, two or three year old plants should be cut back to within about two buds of the two-year-old wood, then be started in stove heat, and when these buds break, the plants should be shaken out of the exhausted soil, and repotted in new compost. Aphis and thrips often infest the plant, but these pests may be got rid of or greatly reduced in numbers by fumigation with XL All, and Tobacco, aided by gently syringing the leaves twice a day with rain-water, and maintaining a genial growing atmosphere in the pit or house in which the plants are growing.

Pentas carnea and *P. rosea*, useful winter-flowering plants, with flowers of delicate pink tints, which are produced abundantly, may now be increased by means of cuttings struck in a hot-bed frame or the propagating-house. The rooted cuttings should be grown on in light loam, leaf-mould, and sand, and receive warm-house treatment till the plants bloom, when the intermediate will be the proper place for them. These plants remain in good condition in apartments that are not too cool, and are therefore very suitable for indoor work.

Cyperus.—The species *C. alternifolius*, the variegated form of it; *C. laxus*, *C. l. variegatus*, and *C. distans* are valuable plants for decoration, either under glass, in pots, or planted in borders or as portable subjects in the dwelling. All of them thrive in a compost consisting of peat, light loam, leaf-mould, and sand. The drainage should be good, as they require much water when actually growing.

Gardenias.—Plants raised from cuttings rooted in August or September of last year, and now growing freely in 6-inch pots, may have the points pinched out if the growth is sparse, and be kept growing in the stove. Those plants which having ceased to produce flowers plentifully, were cut back some weeks ago, will have made sufficient growth to furnish cuttings for propagation purposes, which may be undertaken in any hot-bed having bottom-heat of 80°, or in the propagating-house, and even in a vinery if there is a bed of leaves therein. The present affords a suitable season for clearing the plants of mealy-bug and scale. Any old plants that are kept after the cuttings are taken may be started in brisk heat, if with bottom-heat all the better, being syringed every day twice or thrice, and keeping them close till free growth ensues.

Coleus.—The plants raised from early cuttings will in turn yield a supply of shoots fit for cuttings, which may be trimmed and inserted in pots or pans of light sandy soil, and placed on gentle heat. The stock

plants should be carefully afforded water till growth recommences, and then be repotted and afforded liberal treatment in a light, warm-house.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Strawberries.—At the beginning of March the growth of out-door Strawberry-plants was very forward, but since then the nights have been so cold that the fruits will be late. The weather must be very favourable if Royal Sovereign, on a south border here, is to be ripe by the middle of June. To prolong the supply of fruits from plants in-doors until such date, another batch of pot-plants will need to be put into the Strawberry-house. If the plants when taken in-doors are in bloom, the blooms may be thinned down to eight or twelve of the largest to each plant, according to the size of the fruit of the variety, the larger the fewer. Strawberry-plants when in flower require abundance of fresh air to obtain free-setting and well-shaped fruits. When the temperature keeps up to 60° in dull weather and 70° with sun-heat, too much air cannot be given them. The hot-water pipes need only be heated slightly on cold nights and in dull weather by day. Strawberry plants standing on dry shelves in houses require water once on most days, and twice if the sun be bright. Afford weak manure-water to plants now swelling fruits. Frequent doses are best, and the manure should contain phosphates, ammonia, potash, and lime. Plants on which the fruit is colouring do not require such frequent application of water. Syringe thoroughly plants with swelling unripe fruits once or twice a day in bright weather. Any plants left after the batch now taken inside is removed should have the blooms thinned in the same proportion as those taken in. They may be taken afterwards inside to finish, or they may be retarded by being placed on the north side of a wall to yield fruit when the crop from the outside beds is waning.

Peaches.—When the fruits commence to ripen place a net under each tree, at such a distance below the fruits, that, as they fall into it, they will not be bruised. Any on extreme parts of the tree that the net would not catch may have a piece of old net fixed loosely round each. The fixing of the net should not be deferred too long, as fruit falling on the floor is spoiled. Peaches, like other stone fruit, are of the highest quality when ripened on the trees, and in the case of fruits for home use, this is always practicable. For packing Peaches, the ordinary Covent Garden box is very suitable, being light, and three or four of them make, when tied together, a convenient package. The size of the box is 18 by 12 inches, and 3½ inches deep, inside measurement. Each fruit should be wrapped in a square piece of thin, soft paper, so that the packing material does not touch it. The softest wool-wool and finest-wadding are suitable packing materials, placing a layer at the bottom and on the top, with sufficient pushed in between the fruits as will prevent movement. In packing, it is well to err on the side of closeness, although it must be done with as little and as delicate handling as possible. Peach-trees bearing fruits colouring or swelling have required during the dull, damp weather we have recently had, a little heat in the hotwater-pipes during the day, with ventilation. Avoid too-frequent syringings in such weather, but make up for it by doing the work thoroughly whenever it is fine. During the swelling-stage, Peaches require much water at the roots; and only close observance and experience will tell the gardener just when the trees need it, and if it be more frequent than usual, this is a good sign, for the roots are then in a healthy condition, have good drainage, and open soil.

THE APIARY.

By EXPERT.

Combs.—If anyone has any combs with candied honey in them, or granules of candied honey not thoroughly cleaned out last autumn, I advise that the combs be sprayed with lukewarm water and given to the bees to clear out before new honey is stored in them; any granules left in the comb will start granulation of the new honey very quickly, and may spoil the sale of the sections later on in the season. Newly-hived swarms should have a little help for a few days when first established. A pint of syrup given three or four nights will prove a paying investment, even where full sheets of foundation is given, but more especially so when the swarm is hived on starters only. It is the treatment of the hive in autumn that, to a large extent, determines its success the following year. Hives that are kept at work till

the month of September on the heather, frequently return depopulated. Such require an addition to their numbers, either of driven bees or joining several lots together. Nearly everyone has found that driven bees formed into stocks in autumn, when put on built-out extracted combs fed up quickly to the required weight, are the ones as a rule that come out strongest and swarm first the following year.

Strengthening.—All that can be done, must be done in nursing any stock weak in bees, but which are making rapid progress. Keep the slow-feeder constantly going if food be scarce, or uncapped sealed stores once or twice a week if there is plenty on hand. Suitable spring food may be prepared by pouring three pints of hot water on 5 lb. of white cane-sugar, stirring till the sugar is dissolved, and giving the food lukewarm. Keep the entrances narrowed till the bees become busy, and they require room for going and coming. See that the quilts fit closely down, and that no heat escapes at the top of the hive. When the first overhaul of hives is made, let it be really thorough, and make a note of their condition, this note to be tacked inside the roof, or secured where it will be easy to refer to when needed. On this state what progress is being made in brood-rearing, and what feeding, &c., is required, and do not disturb the brood-nest again so long as progress is maintained until the weather becomes warm and settled.

Giving more space.—Save in early districts, it will be time enough to think of giving surplus chambers when our next number is issued. Some stocks which have wintered on a few frames will require additional combs early in the month. No disturbance of the brood, however, is needed in affording these. When there are bees on all the combs, add a frame on each side once a week till the full complement is inserted. Should the weather be favourable, and a colony is strong, I usually add the full number of combs at one operation, to save further trouble.

Swarming.—When May is warm and sunny, care is needed in checking the issue of undesirable swarms from strong stocks. With plenty of surplus space, however, added after the bees have got well at work in the limited space first given, they may be kept so busily occupied in comb-building as to stave off the swarming impulse which usually arises when the pent-up energies of strong colonies, hitherto held in check by adverse weather, are suddenly aroused amid warmth, sunshine, and the abundance of natural food.

Nothing should be left undone which will be useful later. Hives, supers, syrup for feeding, &c., must be prepared ready for use. Parcels of things which have been stowed away during the winter should be examined and put in order, so that they may be at hand when wanted; in fact, now is the time to look over everything which is likely to be required both for swarming and supering, in order that make-shift appliances need not be used—and, above all, the necessity avoided for doing work in a hurry, which means doing it badly.

Total Honey Imports for 1897.—The total value of honey imported into the United Kingdom during the past year is shown in the following monthly returns for 1897, as furnished to the *British Bee Journal* by the Statistical Office, H.M.'s Customs:—January, £267; February, £1666; March, £1310; April, £1293; May, £1706; June, £1921; July, £5791; August, £1987; September, £1852; October, £2123; November, £656; December, £1489. Total for the year, £21,861.

FRUIT REGISTER.

PEAR TRIOMPHE DE VIENNE.

I was pleased to see your able correspondent, "G. B.," speak well of this valuable Pear. So far, I have not grown it on walls, but as a standard tree, for several years it cropped very regularly. It is an excellent Pear to follow Williams' Bon Chrétien. By going over the trees at intervals of a few days, and taking off the forwardest of the fruits, the season may be greatly prolonged.

PEAR BEURRÉ D'AMANLIS.

This early September Pear has been in commerce for years, and it is well known to many. The fruits from a healthy, well-cared-for tree are of a very large size, but I have repeatedly found that medium-sized fruits with a little colour are the better flavoured. The flesh is melting, very juicy, and slightly perfumed. The tree is a good cropper. *H. Markham, Margate.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY,	MAY 21	Royal Botanic Society, General Meeting.
TUESDAY,	MAY 24	Linnean Society (Anniversary).
WEDNESDAY,	MAY 25	Royal Horticultural Society's Show in the Temple Gardens (3 days). Bath and West and Southern Counties Society's Exhibition at Cardiff (5 days).
FRIDAY,	MAY 27	Royal Botanic Society, Lecture.

SALES.

MONDAY,	MAY 23	Japanese Lilies, Hardy Perennials, Carnations, Palms, &c., at Protheroe & Morris' Rooms.
TUESDAY,	MAY 24	Imported and Established Orchids, at Protheroe & Morris' Rooms.
FRIDAY,	MAY 27	Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chislewick.—56°6'.

ACTUAL TEMPERATURES:—

LONDON.—May 18 (6 P.M.): Max., 57°; Min., 42°.
PROVINCES.—May 18 (6 P.M.): Max., 57°, Achil Head; Min., 48°, Aberdeen.

Ferments in Plants.

THE *Revue Scientifique* recently published a note to the effect that "there is a class of soluble

ferments, such as diastase, pepsine, and ptyaline, which for some time past has attracted the attention of chemists and bacteriologists. It is known that analogous ferments exist also in plants, and SAOHS ascribes to them an important place in the phenomena of nutrition, growth, &c. These ferments are numerous or abundant in bulbs, buds, tubers, seeds, &c. At the end of autumn the plant has generally formed and accumulated considerable alimentary reserves, in the shape of starch for instance, and their existence can be proved. These reserves are stored up until the spring, when they are utilised for the important work of vegetation, which takes place at that season almost before the roots have recommenced activity, and the leaves are not yet developed to collaborate in the common task. The utilisation of these reserves can, there is no doubt, only take place with the assistance of ferments which aid in digesting and rendering assimilable the nutritive materials. The case of a bulb is typical. A bulb which receives no other food than distilled water, whence it can draw no nutritive matter—puts out leaves, roots, and flowers;

and it is owing to the accumulated reserves which constitute the greater part of its substance, that this development is made. The case of a seed is not less obvious. Certainly it is not food-material obtained from distilled water that suffices during the first phases of the development of the young plant to form the radicle, stem, or cotyledons. These are the store-house of nutritive matters, at whose expense the growth is made. Is it not in seeds when germinating that the brewer seeks diastase—malt?

Mr. WAUGH's experiments bore witness to the vitality of seeds. It is known that many seeds obtain their maximum germinating power only after a certain time. With some maturity is very rapid, with others it is slow.

On the other hand, the power of germination, after attaining a maximum, diminishes and ceases. After two, three, ten, twenty years, according to the species, the greater part of the seeds lose the faculty of germinating, although, according to circumstances, this loss is very variable. (See the experiments of BROWN and ESCOMBE, of VICTOR JODIN, DE CANDOLLE, &c.) To what is this deterioration of the germinating faculty due? Is it to a loss or diminution of "vital principle?"

Mr. WAUGH believes that this phenomenon can be most reasonably explained by supposing it to be due to a diminution in quantity or deterioration in quality of the indispensable ferments contained in the seeds. He therefore made certain experiments on the action exercised by solutions containing ferments on the germinating power of old seeds which had partly lost their germinating faculty.

In the first case he submitted some old seeds of Tomato, twelve years old, to the action of different solutions containing ferments, and the following is the result obtained:—

Test: Control (seeds in pure water) germination	23 per cent.
Seeds in trypsin, germination	56 "
" " extract of pancreas, germination	36 "
" " enzymol, germination	52 "

In a second experiment, also with seeds of Tomato twelve years old, he found:—

In pure water, germination	34 per cent.
In diastased water, germination	70 "

A third experiment gave the following results:—

In pure water, germination	12 per cent.
In pepsine	80 "
In diastase	85 "

On the whole, in this latter case the germinating power was increased from 5.67 to 6.08 per cent. by the use of ferments. With other soluble ferments, and other seed, Mr. WAUGH obtained corroborative results. These experiments have an obvious practical interest, on which there is no need to insist; they have also a great scientific interest, in that they show the importance of ferments, and indicate that the hypothesis formed by Mr. WAUGH shows decided probability. It would be well for these experiments to be repeated and increased to ascertain which is the ferment most useful according to circumstances, and according to the species of the seeds.

VIEW IN MR. ARDERNE'S GARDEN (Supplementary Illustration).—The characteristic charm of the semi-tropical vegetation, arboreal and other, of this interesting example of a garden at the Cape, induces us, as it has on previous occasions, to present our readers with another view from the same garden. This view depicts a less well-trimmed and dressed part of the grounds, where the vegetation is of a more indigenous character, and where running water

lends its peculiar charms to the landscape. We may take it that the stream is never dry, even in that somewhat thirsty land; hence the bridge, and the luxuriance of the vegetation in the hollow, through which the stream flows. The summer-house in form is likewise indigenous, and, as far as the roof is concerned, a reproduction of a Kaffir-hut, and it is, moreover, spacious, and suggestive of cool-air currents, even on the hottest day.

MR. GLADSTONE GONE!—The decease of this venerable statesman on Thursday morning last is a national event, that has aroused the sympathies of the English-speaking race throughout the world. Born in December, 1809, the whole of his long life and remarkable powers were devoted to work, and the greater part of this was performed in the service of his country. We are of no party in politics, but the close of such a life of persistent effort to obtain for the country what personal conviction had declared was necessary and right, oftentimes in the face of enormous opposition, is a moment when all differences are stilled—when the noble character and work of the departed are alone remembered. Mr. GLADSTONE always felt an interest in *petite cultures*, and doubtless his advice to cottagers and small farmers to grow small fruits for sale in the towns, and to makers of jam, has been abundantly followed, with good pecuniary results to the growers. He had an interest in woodcraft generally, and was as expert in planting as in felling trees. The chief lessons Mr. GLADSTONE's life offers to us as gardeners are persistence in duty and a determination to master as far as possible, the smallest details in the science or art in which we are engaged.

"BOTANICAL MAGAZINE."—A fire which occurred at the lithographers has prevented the issue of plates 7593 to 7596 this month. In consequence of this accident, the only plant of which a figure is given in the May number is:—

Amonium hemisporicum, which was received from Mr. RIDLEY, Director of the Botanic Garden of the Straits Settlements. It is a Scitamineous plant of tufted habit, with long erect branches, bearing shortly-stalked, oblong acuminate leaves of a reddish colour beneath, and about 18 inches (46 cent.) long. The flowers are borne on separate stalks, shorter than the leaf-stems, and gathered into globose heads surrounded by crimson, green-edged, boat-shaped bracts. Flowered at Kew.

ROSE EXHIBITION AT GOTHA.—A great exhibition of Roses is arranged to take place at Gotha in connection with the Industrial Exhibition, and will last from July 10 to 12. Every information will be afforded by the local committee at Gotha and the officials of the *Verein Deutscher Rosen Freunde*, from whom schedules can be obtained.

THE THREATENED DISFIGUREMENT OF RICHMOND HILL.—It appears that a scheme is afoot to construct a light railway, worked electrically on the overhead trolley system, along the Queen's Road, in front of Richmond Park gates, and descend the beautifully wooded slope of Petersham Hill. In this case, unfortunately, the appeal is not to Parliament, as in the case of the Westminster Thames Embankment; but all that is necessary is for the London United Tramways Company, the promoters of the scheme, to obtain an order from the Light Railway Commission, and the approval of the Board of Trade. It would be a great pity if the Light Railway Act, which was mainly intended to facilitate the transport of agricultural produce in sparsely inhabited rural districts, should be made use of to inflict irreparable damage on the picturesque beauty of the district of Richmond and Petersham. Surely means can be taken to keep the Philistine despoilers at a distance from this, one of the few beautiful spots left untouched round London.

PRESENTATION TO MR. W. HOWARD.—A large number of Kingston friends of Mr. HOWARD, who was for thirty years attached to the Coombe-wood Nursery of Messrs. JAS. VEITCH & SONS, and for a long portion of that time as manager, took occasion



FIG. 116.—THE POND IN MR. ARDERNE'S GARDEN CLAREMONT, CAPE TOWN. (SEE P. 312.)



on the evening of the 11th inst. to present him with a handsome acknowledgment of his long connection with the town. Mr. HOWARD has recently left Coombe-wood to occupy a similar position with Mr. ANTHONY WATERER, at Knaphill. The presentation, which took the form of a handsome, gold, keyless, lever, hunting-watch, and a purse containing £10 10s., was made by Mr. A. W. HOMERSHAM, J.P., ex-mayor.

OPEN SPACE FOR SHOREDITCH.—On Saturday afternoon, Charles Square, Hoxton, acquired by the London County Council and the Shoreditch Vestry at a total cost of £1000, was formally opened to the public, the ceremony being performed by Mr. G. SHAW LEFEVRE, one of the representatives of the borough of Shoreditch in the London County Council. The square had hitherto been open only to the inhabitants in the four blocks of houses by which it is surrounded. It lies in the midst of a very thickly-populated area, which had practically no recreation-ground.

"ONE-AND-ALL" NATIONAL FLOWER SHOW, 1898.—This great annual show of amateur horticulture will take place on August 19 and 20 at the Crystal Palace, concurrently with the National Co-operative Festival. The prizes amount to over £350 in cash, besides gold, silver, and bronze medals, framed certificates, and other awards. The Agricultural and Horticultural Association contribute over £200 to the prize-list, and the Crystal Palace Company £150. The schedule includes seventy-two pages, and the introduction states that last year 34,695 visitors attended the show, which comprised over 4000 exhibits, extending nearly a mile in length. The Hon. Secretary's address is 3, Agar Street, Charing Cross, W.C.

IMPROVING EXETER PLEASURE GROUNDS.—The work of remodelling the Northernhay Pleasure Grounds at Exeter, which was entrusted by the city council to the firm of Messrs. ROBERT VEITCH & SON, was completed last week. One of the alterations had been rendered necessary by the lack of space around the band-stand, which was quite insufficient to accommodate the number of persons who wished to listen to the music. This is only one of the improvements carried out, but it is such a common one, owing to short-sightedness when laying out many parks, that it may be well to emphasise the importance of proper selection of site, and the securing of a sufficiently large plateau around a band-stand in the first instance. Other desirable improvements have been effected, and considerable planting done, which has added much-needed variety amongst the hardy shrubs.

THE DOVER FLOWER-SHOW will be held in the Dover College Grounds on August 17 and 18. The schedule includes 120 classes, the first section, embracing fifty-nine, being open to all England. A score of classes are reserved for allotment-holders in the borough who cultivate not more than 40 perches of land.

BATH AND WEST AND SOUTHERN COUNTIES SOCIETY.—This old established society will hold its annual exhibition from May 25 to 30, in the Cathays Park, Cardiff, where the local circumstances are such as should help to make the event a great success. The various sections of this wide-embracing show include live stock, working dairies, implements and machinery, fine arts, art manufactures, horticulture, horse-shoeing, milking, music, &c. The entries for the forthcoming exhibition exceed in almost all cases those made in 1882, when the society last visited Cardiff.

GOLDIE'S CANADIAN DIARY.—In a pamphlet published by Wm. TYRRELL & Co., Toronto, we have the *Diary of a Journey through Upper Canada and some of the New England States*, taken in 1819 by Mr. JOHN GOLDIE. This traveller, born in Ayrshire in 1793, went to America first in 1817, at the instance of Sir (then Mr.) WILLIAM HOOKER. After a second visit in 1819, the notes of which are now before us,

he again returned to Canada with his family and remained there until his death, at the age of ninety-three, in 1886. The diary before us is not a scientific one, Mr. GOLDIE's botanical journal having been lost by fire, but it is not less interesting for that, especially for non-technical readers, who will enjoy his accounts of a country which, no doubt, is in many ways changed in the past eighty years. A pleasing item in the pamphlet is an illustration of *Aspidium Goldieanum*, discovered by this traveller, and named after him by Sir WILLIAM HOOKER. Mr. GOLDIE's original description of the Fern is also given.

AN ORCHID SALE.—The sale of some of Mr. THOMPSON'S Orchids on the 11th and 12th inst., at Walton Grange, Stone, by Messrs. PROTHEROE & MORRIS, Cheapside, London (writes a correspondent), was well attended by Orchid-growers and experts. The plants generally were in capital condition, and there was a good show of *Cattleyas*, *Dendrobiums*, *Laelias*, and *Odontoglossums*, in the houses. The arrangements for the sale, which were in the hands of Mr. STEVENS, the skilful gardener at this place, were very satisfactory. Below are some of the highest prices realised for single plants, the fine *Odontoglossums*, of course, fetching the largest sums:—*Odontoglossum crispum* Golden Queen, with 1 bulb and 1 strong growth, 160 gs.; *O. septrum aureum*, with 4 bulbs, 140 gs.; *O. nebulosum album*, with 3 bulbs and 1 growth, 15 gs.; *O. elegans*, Pollett's var., with 1 bulb and 1 lead, 7 gs.; *O. Coradinei expansum*, with three bulbs and 1 spike, 20 gs.; *O. excellens*, 3 bulbs and 1 lead, 20 gs.; *O. crispum* Kate, with 3 bulbs and 3 growths, 20 gs.; *O. aureum*, with 1 bulb and 1 growth, 26 gs.; *O. Wilckeanum* var., with 1 bulb and 1 lead, 15 gs.; *O. crispum* Stevensi, with 6 bulbs, 2 leads, and 1 spike, 110 gs.; *O. c. Alfred*, with 3 bulbs and 2 leads, 24 gs.; *O. Ruckerianum ocellatum*, with 1 bulb and 1 lead, 50 gs.; *O. Wilckeanum nobilior*, 33 gs.; *Cattleya labiata Peetersii* superba, with 3 bulbs and 1 lead, fetched 75 gs.; *C. Victoria Regina*, with 4 bulbs, 44 gs.; *C. Skinneri* alba, with 15 bulbs and 4 leads, bearing 4 sheaths, 30 gs.; *Laelia anceps Dawsoni*, with 5 bulbs, 6 gs.; *L. Gouldiana*, with 8 bulbs, 11 gs.; *Laelio-Cattleya Pallas*, with 3 bulbs and 1 lead, 12 gs.; *Epiphrontis Veitchi*, with 11 growths, 7 gs.; *Oncidium ornithorhynchum* album, with 3 bulbs and 2 growths, 10 gs.; *Cattleya labiata coerulea*, with 2 bulbs and 1 lead, 28 gs.; *Cypripedium insigne* Dorothy, 1 old and 2 new growths, 21 gs.; *C. Rothschildianum giganteum*, 1 old and 1 new growth, 20 gs.; *C. Charles Richman*, 10 gs.; *C. insigne* Dorothy, 1 old and 2 new growths, 21 gs., in two instances.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY: A NEILL PRIZE.—At a meeting of Council held in Edinburgh on the 18th inst., Mr. THOMAS LUNT, gardener, Ardgowan, was awarded the NEILL Prize for the biennial period to May 15.

MESSRS. MACKENZIE & MONCUR'S ESTABLISHMENT.—The fire on the night of the 12th inst., which resulted in the total destruction of the premises of these well-known horticultural builders in Edinburgh, caused damage to the extent of £20,000. The discovery of the fire was made shortly after six P.M., after the employees, other than the office staff, had left for the day. Notwithstanding all the efforts of the fire brigades, whose work was extremely difficult, owing to an insufficient supply of water, the fire was not brought under control until it had quite destroyed the works. Of the contents destroyed, there were several valuable wood and iron-turning machines, tools, and a large quantity of stock in glass, iron, wood, &c. There was also in course of construction within the works a large winter-garden for Stanley Park, Liverpool, and an addition to the temperate-house of the Royal Gardens, Kew. We believe the loss is quite covered by insurance, and the firm have already made arrangements for rebuilding the works, and temporary premises have been found. A similar fire occurred at the works some years ago.

BOOK NOTICE.

FLOWER FAVOURITES; their Legends, Symbolism, and Significance. By Lizzie Deas (London: George Allen, 156, Charing Cross Road).

THIS is, as regards binding, print, paper, and general get-up, as pretty a little book as could be desired. On testing the contents, we find the stories of some fifty familiar flowers, both garden and wild favourites, told in simple and pleasing language. Some of the chapters have, we are told, appeared on former occasions as magazine articles.

The legends and quotations cited may not be new to every one, but are certainly much less hackneyed than might have been expected in a book of this kind, and we are thankful to be spared certain but too-often repeated sayings and quotations which other writers upon flowers seem unable to repress. The extracts cited are well and neatly put together, not put in one after another until a chapter is supplied. Nor has the writer gone to the opposite extreme of filling up vacant spaces with long and wordy paragraphs of her own composition.

There are similar books to the one before us, avowedly, and of necessity, compilations rather than original matter; but, as may be inferred, the present is a favourable specimen of the class. It shows varied reading and research, and presents us only with gems of thought, not with anything unpleasing or jarring. As an indication of the kind of narrative quoted by the authoress, we select the following legend of the Carnation, taken from E. Gerard's *The Voice of a Flower*, and telling how the armorial bearings of the house of Ronsecco come to be charged with a *Garofano*, or Carnation:—

"Many hundred years ago, at the time of the Crusades, a daughter of this house, Margherita Ronsecco, loved a brave and chivalrous knight, who bore the name of Orlando. Their marriage was already fixed, when a call resounded through the country, summoning all good knights and gentlemen to repair to the Holy Land, and seek to deliver the Saviour's tomb from the power of the infidel. This was a summons to which none but a dastard could turn a deaf ear, and Orlando, though torn by grief at having to leave his adored Margherita, and see the cup of bliss thus dashed from his lips at the eleventh hour, yet never dreamed of hanging back. 'Farewell, *anima mea*,' he murmured, clasping her to his heart. 'Be true to me, beloved,' she sobbed; 'do not forget thy Margherita in yon distant land.' 'Never while I breathe! But give me this flower that nestles on thy sweet bosom, to wear as a talisman next my heart.' Blinded by scorching tears, she fastened the white Carnation to his mailed breast-plate, then one more last embrace and he was gone—gone never to return.

A year later Margherita was waited upon by a strange horseman, who brought her mournful tidings from the Holy Land. Orlando had fallen in battle against the Saracens, and from his dead body had been taken a withered white flower, which, together with a lock of Margherita's fair hair, had been found on the warrior's breast. The Paynim arrow, which with deadly aim had found its way to the true knight's true heart, had likewise pierced through the silken bag containing this talisman, and his warm life-blood, welling up from the death-wound, had partially dyed the once snow-white blossom to a deep crimson hue. This precious relic, now the only thing remaining to her of her beloved, was treasured up by Margherita with tender reverence, and seeing that the flower contained some tiny acid-vessels, there came to her the thought to plant these in a pot of earth. Carefully, anxiously, she watched the flower-pot day by day, bedewing the earth as much with her abundant tears as with water from the fountain.

At last—oh joy and consolation! some tiny green sprouts began to appear, which soon developed into a strong and vigorous Carnation, covered with tightly rolled up buds. But oh, wonder of wonders! when these began to unfold, they proved to be quite different from the flowers of the original plant from which they had sprung, for while in each bloom the outer rim was sooty-white, its centre was marked by a deep crimson stain, like the blood which had stained Orlando's withered blossom. And it was this miracle, wrought by the Almightiness in order to show the power attached to true and faithful love, that caused the head of the Ronsecco family to have a red and white Carnation emblazoned on his coat of arms. Margherita never married; with loving fidelity she tended her precious flower, and when, after a very few years, she pined away and died, she left the Carnation as a legacy to her sisters, with the injunction never to bestow one of its blooms on anyone, save the man to whom they had pledged their troth. Thus the plant became a sort of heirloom in the Ronsecco family; the cuttings of the flowers were only multiplied in each generation according to the number of maidens, every daughter of the house receiving at her birth a vase containing a plant of the white and crimson Carnation. And so it came to be asserted that whenever a maiden of the Ronsecco house was destined to die unmarried,

as surely would the plant wither away and perish; and if a daughter of the Ronsecoos lost her honour, or had given away her flower to an unworthy lover, then the flower would be blighted overnight."

If the name *Marguerite Carnation* is familiar to our readers, this ingenious way of accounting for the origin of it is surely less well known.

The writer of this little book does not confine herself to English literature, but gleans from Greek and Norse mythology downwards, and includes references to various continental traditions.

The Germans are famous for the pretty legends which have gathered round the names of their plants, and the following one, which is supposed to account for the Cowslip being called *St. Peter's herb*, tells the little story in attractive language: "St. Peter heard it whispered in Heaven that people were contriving to gain admittance by means of a back entrance, in place of by the front doorway, of which he is the keeper; and such was his agitation at the suggestion, that he let drop his bunch of keys, which, falling down upon the earth, there springs from them the beautiful little yellow flowers commonly known as *Himmelschlüsselchen*, or *Keys of Heaven*."

We will not quote further, or we shall anticipate the pleasure future readers will take in the book. It is a volume for reference and occasional use rather than for steady perusal, and for all flower-lovers, for those who have adopted some pet blossom, or who bear a "flower" name. These will be interested in the accounts of the Daisy, Edelweiss, Pansy, Iris, Lily, Rose, and Violet.

It further occurs to us that it was wise, when putting this book together, to limit the number of flowers of which it treats and also to include some comparatively-neglected specimens, such as wild Chicory, Basil, Lek, Marjoram, and Sainfoin. In fact, there is every reason to congratulate the authoress on her work, which will prove a very storehouse of quotations to future compilers and magazine writers.

GUNNERSBURY HOUSE GARDENS.

IN Messrs. de Rothschild's gardens attached to Gunnersbury House, increased facilities have been acquired during the past season or two for the forcing of fruit trees. Several span-roofed houses, 66 feet long by 18 to 24 feet wide, have been built, resembling in some respects those in the famous fruit-tree nurseries of Messrs. Rivers & Son at Sawbridgeworth. They run from east to west, and in the important matters of ventilation and light they are admirable. They are small matters that go to secure success in fruit growing—the following for instance. In most fruit and plant houses the bottom ventilators in the wall are hinged from the top. These at Gunnersbury are hinged at the base, and when opened therefore admit air from the top. Many gardeners will at once see a reversal of practice in such a system, but it provides for the admission of fresh air, without the degree of cutting draught that may take place when the shutters are opened the reverse way. The new houses are really orchard-houses, that is, they provide for the forcing of standard trees in pots, without the trellises or trained trees common in most fruit houses. When visiting the gardens a fortnight ago the Nectarine fruits in the earliest house were ready for the table. The variety was Cardinal, a new one sent out by Messrs. Rivers, and capable of being forced in a much shorter period than any previously existing sort. This is another instance in which the Sawbridgeworth firm has conferred a boon upon fruit growers and consumers. Mr. Hudson has every reason to be satisfied with the measure of success he has already achieved in forcing these pot fruit-trees. The Cardinal Nectarines, for instance, which have now ripened, give from ten to fifteen fruits per tree, and as these are of good size, and apparently of high quality, it is a very good return. It would be a great advantage were there a few early Peaches of equal quality and habit, but at present they are not to be had. Early Beatrice Peach in the same house was a little behind the Nectarines, but has since ripened. Jefferson's and Reine Claude du Comte

Atthems Plums in the same division bore good crops of fruit. Mr. Hudson declares he is agreeably surprised to find that Plums may be forced so readily. Early Transparent Gage and Kirke's varieties are equally satisfactory. In another house was a collection of late Nectarines and mid-season Peaches of the choicest kinds, and in a third house a collection of Apple, Pear, and Cherry trees. Apples, and particularly Cox's Orange Pippin, promised exceedingly well, and Pears and Cherries are satisfactory. The earliest black Cherry, which was ripe at the end of April, is Guigue Annonay, and Bigarreau de Schreken is also a very desirable variety. In a smaller house Plum and Peach trees have just set their blossoms. In a lean-to house a fine tree of Lord Napier Nectarine has a crop of over 400 fruits. The tree was planted by Mr. Hudson twenty years ago, and now fills the house, which is 24 feet long by 13 feet wide. It was started on the 10th of December last, and Mr. Hudson expects the fruits to ripen about the end of the present month. In four years the tree has ripened 1,800 fruits, and may be regarded as a very productive specimen indeed. The border was well made in the first instance, over a solid concrete bottom.

Two divisions of a span-roofed house were filled with Royal Sovereign Strawberry plants, in one case with ripe fruits, and in the other with fruits approaching that stage. This is truly a grand Strawberry for forcing, and we have nowhere seen it better done than at Gunnersbury. The plants were on a step-stage and from either side faced the path in the centre. As the houses run east to west, the plants would get a fair amount of sunshine, but were further removed from the glass than Strawberries are usually placed. Royal Sovereign throws its flower-spikes up boldly from the plant, and they usually require to be staked, as the fruits were here. The plants seldom fail to fruit freely, and the fruits are large, of good colour, and capital flavour. Mr. Hudson also forces a quantity of Vicomtesse Héricart du Thury Strawberry plants, but these are not forced because the variety is better than Royal Sovereign; but if they be forced early and planted out soon afterwards, this variety will fruit moderately well again in the autumn. Some of these had already been planted out in the border for this purpose; about a thousand alpine Strawberries also are fruited each year at Gunnersbury House.

In the Fig-house the trees had just yielded their second crop of fruits. They were started on October 17 last, and the first fruits were ripe on February 16. Of the varieties forced here, the best are St. John and Pingo de Mel. It is a pity that gardeners are so little interested in Fig culture, that in many instances they go on year after year forcing old varieties like Brown Turkey and Negro Largo. These are excellent Figs for summer or late crops, but for hard forcing the two already mentioned are much surer to carry a crop of fruits. More than this, although Brown Turkey is a large fat fruit, generally appreciated, it is not so good in flavour, or so thin in the skin as some others. By all means grow Brown Turkey, but at the same time give the newer ones a chance, as in the case of other fruits.

In the earliest vinery, containing pot-Vines, Grapes were ripe on April 30. The varieties include Royal Muscadine, Black Hamburgh, and Foster's Seedling. There are twenty-eight Vines, and the bunches of fruit in the house averaged five to each Vine—a very satisfactory crop.

In the plant-houses the specimen plants of scented-leaved Pelargoniums were being overhauled, and the first training for the season commenced. These plants have been exhibited at Shrewsbury, as well as at London shows, consequently their character is very well known. Mr. Hudson has got together a good collection of varieties—all, in fact, that have come under his notice.

Though Orchids are not so numerous here as in many gardens, there are added from time to time various useful species. There is a fine lot of *Vanda cœrulea*, one of the most charming Orchids, and Mr. Hudson looks forward to obtaining several dozen spikes of bloom this season. We noticed a large piece of *Lælia purpurata* with ten flower-spikes.

The original piece was purchased by Mr. Hudson's father in 1862, at Mr. Stevens' sale rooms, and the plant we noticed is from a piece taken from the plant in 1870. There has been no "degeneration" here, at least. There is a good batch of plants, also, of *Dendrobium formosum giganteum*.

We next proceed to the lake, where the Water-Lilies have just been planted. Mr. Hudson has a fine collection of Marliac's hardy Nymphaeas, and we hope to see them when in bloom. A small pond is to be made in the garden also where the water will be heated, and blue Nymphaeas cultivated.

The faces of the Rhododendron beds, and, indeed, wherever space was available, have been planted with Lilliums, which are expected to make a fine display in late summer.

A visit to the very novel Mushroom-house, where excellent crops are obtained from the cellars belonging to the original Gunnersbury House, and we had completed an inspection of this most interesting and well-kept garden. P.

FAN-TRAINED MORELLO CHERRY TREES.

THE management of the Morello Cherry, when planted against a wall, is very similar to that pursued with the Peach in this country. The tree should be pruned early in the spring, whilst the buds are still dormant, reserving plenty of last year's shoots at full-length, but not crowding them. Some gardeners allow these to grow at right angles to the face of the wall, instead of laying them in against it, with astonishing results in the matter of crop. The shoots which have borne fruit, if not required for filling vacant spaces, or extending the area covered by the tree, are removed at the winter pruning, and new are laid in. Summer disbudding of superfluous shoots, and selecting next year's fruiting ones, must be sedulously carried out, and all main shoots nailed in securely, in such a manner as to secure an evenly-balanced fan-shaped tree. Our illustration (fig. 117) shows such a tree growing at Stoneleigh Abbey, Kenilworth, Lord Leigh's beautiful Warwickshire residence. Mr. Martin, his lordship's gardener, who sends the photograph from which the picture was taken, states that it is one of a number of Morello Cherry trees that occupy the northern side of a wall 9 feet high and 150 feet long, which fruit splendidly most years. The trees are young and vigorous, and consequently they produce great crops of very fine fruits.

A north wall affords a capital means of retarding the fruits and keeping them when ripe till late in the autumn; but Morellos and similar varieties of Cherries, as, for example, Belle Magnifique, make very prolific bearing and neat standards, in which form it is an easy matter to protect the fruit from the depredations of blackbirds and thrushes with fish-netting.

FOREIGN CORRESPONDENCE.

THE FISH RIVER.

SUNDAY, January 2.—I took one of our Hottentot labourers, loaded him with provisions for three days, a botanising-tin and paper, and started for the Fish River, where, as it is the only stream of our colony, that in good years runs for two to four months, I supposed a quite different and wonderful vegetation would be found. The plain, which I traversed on a very little used footpath, is interrupted by chains of small sandstone hills, and offers very little to the botanist. The whole plateau, whether sandstone, sand, or clay, is covered with enormous green bushes of the broom-like *Euphorbia*, now bearing on the top of its branches two or five locular fruits (not 3-locular, as those of all European species), with the same number of seeds. They are of the size of a *Lathyrus* seed, and very oily. On the base of this spurge is now flowering a very curious fleshy red parasite. It is a three-lobed flower of 5 to 6 inches diameter, in its construction much like the flower of the *S. European Cytinus*. The Hottentots call it *Chanib*, and eat it, although it contains (like *Cytinus*) so much tannic acid that it at once colours a knife

black. *Parkinsonia africana* (Lamoonboom of the Afrianders) is now flowering with thin bunches of flowers. This is a rather ugly, tall shrub, not to be compared in elegance with *P. aculeata*; the seeds are used by the natives in times of scarcity as a substitute for Coffee. The Stinkbush—I take it for a *Celastrina*—is a very robust, almost globular shrub, with clusters of small green flowers, having a most unpleasant fecal odour. It can be smelt for a good distance. *A. capparidea* is a tree 15 to 20 feet high, and a stem 1 foot thick, with greenish, insignificant flowers, and bean-like fruits (contracted between the seeds). The finest plant is *Rhigozum trichotomum*, a verticillately-branched shrub, covered two weeks after the first rain with Azalea-like, sweet-smelling white flowers; it is a *Bigoniad*, like *Catophractes Alexandri*, which is very common, too; both are most worthy of introduction into the Riviera gardens. On the same high plateau are common three red-flowering *Hermannia*, and a wonderful *Asclepiad* of the tribe *Stapelie*, resembling a *Cereus*; it has about fifty columns or stems 1 to 2½ feet long, each bearing on its top a ball of six to ten magnificent reddish-brown flowers 2 to 3 inches across. This is doubtless the finest succulent plant of the whole country, and could be

sour. The botanist does not find here what he might expect from the united action of water and heat; the species are the same as he finds in any dry river, only more luxuriant, namely, *Acacia horrida*, *Euclea pseudobenum*, *Tamarix austro-africana*, a shrubby *Compositae*, with small violet heads, and a few more common things.

Three hours' further walk over another plain, on which *Euphorbia* abounds, brought me to the Fish River, the only river of importance in this country. It is a periodical water-course, here about 75 yards broad, and 2 feet deep in its deepest place, of clay-yellow colour. The scenery along the river banks is very picturesque. There are on both sides perpendicular rocks, very similar to the famous sandstone rocks of the "Saxon-Bohemian Switzerland." The shining, bright green of the *Ziziphus*, the sweet-scented golden-yellow trusses of *Acacia horrida*, make the landscape very lovely. I did not stop long here, but climbed the black rocks on the left bank, and slept in the sandy bed of a tributary stream. The silence of the night was interrupted for hours by the fearful noise of a herd of baboons. The next afternoon we arrived again at the banks of the Fish River, just opposite the newly-built house of one of our

a *Marsilia*, a pretty white-flowering *Veronica* (?), and, growing on the Tamarisks, a *Loranthus*, with beautiful red flowers and red berries. As I had time, health, and food, I decided to extend my excursion as far as our capital, Keetmanshoop.

KEETMANSHOOP.

About the trip to Keetmanshoop I have very little to say. After three hours' walk from Sechim, Mr. W.'s place, I arrived at the foot of the Shangkop, a perfectly conical peak in the wide shrub-covered plain, only 300 feet high, but visible from a long distance. Next forenoon I arrived in Gobas, on the left side of the Schaaprivier, where, in one of the three existing pits, I got, by digging with the hands, some black and disagreeably smelling water. I could use it only for coffee-making; it was, at least, not salt. On the stems of the fine *Acacia horrida*, which are scattered over the river-sands, I noticed large exudations of the best white gum, which my Hottentot preferred even to my meat and biscuits. I tried it also, and found the wet flowing gum especially of an excellent sweetish taste. Hottentots often live for weeks exclusively on this gum, and it is also the chief food of the baboons. The path, a real and rather

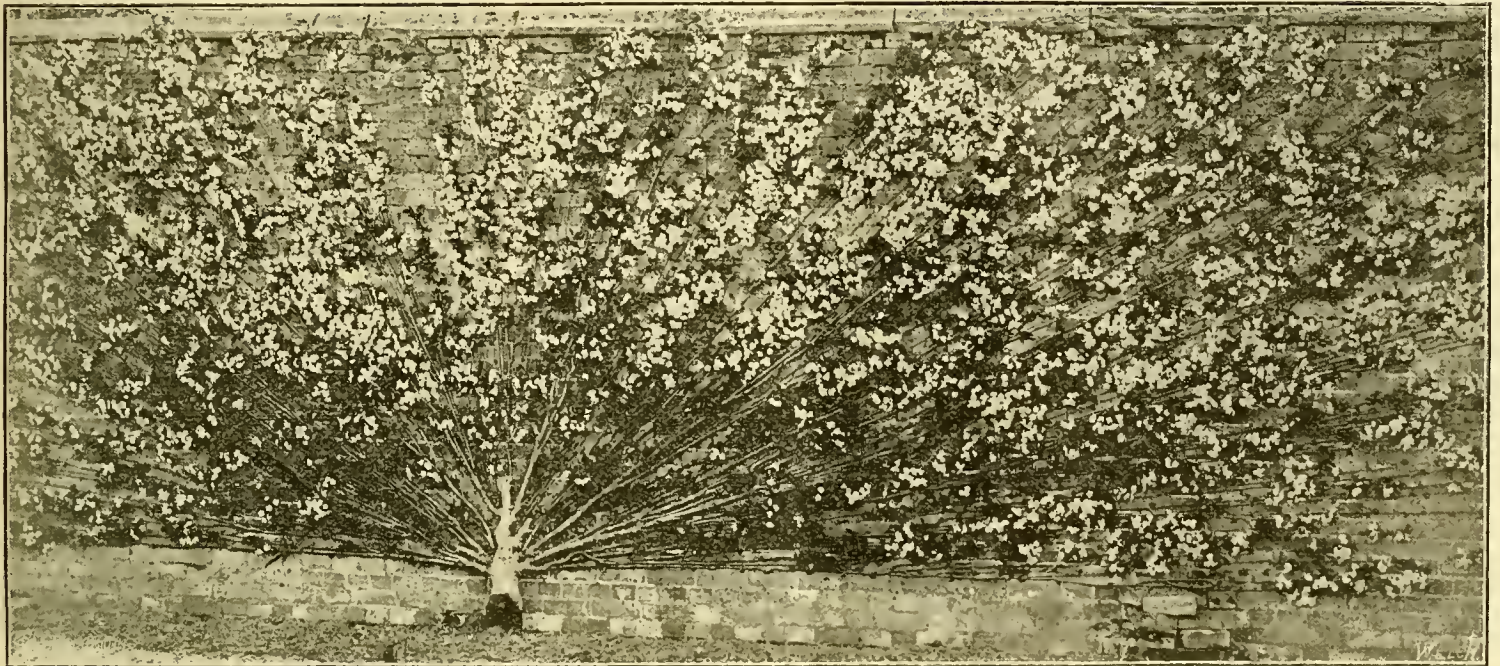


FIG. 117.—MORELLO CHERRY-TREE IN FLOWER AT STONELEIGH ABBEY, KENILWORTH. (SEE P. 314.)

very easily exported by thousands to Europe if there were a better communication with the coast. The transport-riders cannot fill their waggons with goods when going down, as they are obliged to load them with grass for the desert which separates the coast from the interior, otherwise their cattle would die of hunger by the road. Hottentots are fond of the *Stapelie* and allied plants, although they are as bitter as *Quassia*.

I descended from the high plateau into a very deep and stony valley, whose slopes were covered with *Cereus*-like spiny *Euphorbia*, 8 feet high, the stems of which are crowned partly by rather large green flowers, partly by fruits of the size of a Cherry. There is also growing a stemless *Aloe*, unknown to me, with red flowers and remarkably small fruits. It is quite a wonder to me how this plant can grow there between the stones, which are so hot that they burnt even through my very thick boots. At the mouth of the above-mentioned valley I found a flat green spot, with a small fountain between the Thorn trees (*Acacia horrida*), Tamarisks, and Ebouy trees (*Euclea*). Here, in the shade of the latter, we reposed for several hours, and enjoyed the rare view of the green carpet of sour grasses around us. It is very peculiar, that in this country the best grass for cattle, the *Poa*-grass (*Aristida*) grows on stony and very dry places only, and in dry sands, whilst the grass (*Scirpus*) in the neighbourhood of fountains is always

oldest hunters and farmers, Mr. W. I was received by him and his family with that cordiality which is only to be found among Afrianders. Whether they are Dutch, English, Scotch, German, or French, it makes no difference. Mr. W. has started here, on the sandy banks of the Fish River, a plantation still in its commencement, but very promising. Virginian Tobacco and *Nicotiana rustica* looked very fine, and were partly ready for harvesting. Beans, Batatas, Pumpkins, and other vegetables, were as fine as in any European garden. The actual garden is not large—about 2 hectares, but it could be extended to at least 8 hectares, and about 10 hectares might be planted with timber-trees. I advised the proprietor to plant *Eucalyptus*, especially such species as *E. globulus*, *marginata*, *amygdalina*, *Casuarinas*; and some of the West Australian *Acacias*, such as *A. dealbata*, *decurrens*, and *Melanoxylon*. I saw a seed-bed with several hundreds of *Acacia pycnantha* ready to be planted out in a few weeks. Mr. W. has more water than he wants; and in winter-time, when the Fish River does not run, there remains in its bed, just in front of his garden, a natural reservoir, 6 to 9 feet deep, and 1000 yards long, which can never be emptied. Mr. W. has the advantage, that his ground is not salt, or only so slightly that it is harmless to the plants.

Of botanical curiosities, I found in this place only

good waggon-road, ascends from Gobas slowly to Keetmanshoop, where I arrived late at night. I remained there from the sixth to the twelfth of January.

The *Bezirkshauptmann* (Provost), Dr. Golinelli, received me with much kindness. He is a great friend of gardening, and has the most earnest desire to render Great Namaland important services in that direction, but there are not yet means for so doing. He showed me in his garden wonderful healthy seedlings of *Pinus halepensis* and *Eucalyptus globulus*, which he intends to plant out between the magnificent Camelthorn-trees (*Acacia giraffie*) which lend an unsurpassed charm to the young settlement. The front of Dr. Golinelli's house, which is standing amidst the garden, is adorned with four slender specimens of *Aloe dichotoma*. One day I rode with my host to Warmbakia, a farm on the Lion River. The vegetation on the way to that place was beginning only now to awake from the long hibernation (the first rain having fallen two weeks ago in the district of Keetmanshoop), whilst in Inachal the *Rhigozum*, *Catophractes* and other shrubs had already flowered in the first half of October, ten days after the first rain in that district. As the time from one rain to the next in this country is generally sufficiently long to make everything flower and ripen its seeds, a second heavy rain permits the vegetation to flower and ripen seeds for a second time in the same season, and I was told

by old settlers that many plants sometimes ripen the seeds for a third time.

I found on the way to Warmbakis an *Acacia* called Chanu by the natives, a shrub only 7 to 10 feet high, with many stems, most agreeably-scented flowers, and long thorns like those of *Acacia horrida*. I never saw it before. An interesting *Euphorbia* of the *Caput Medusæ* section, occurring in great quantities, was also new to me.

The Lion river, which we reached after four hours' riding, offered nothing new, only *Acacias*, *Zisiphus*, *Euclea*, and *Tamarisks*. Thus I came to the conclusion that the borders of periodical and perennial rivers in this colony offer to the naturalist much less than do the dry plains and hills. The borders of the rivers, especially of the Fish River, are better for gardening and timber-growing, as it is stated that vegetables grow best in Namaland, in the saltless sandy deposits of the rivers if manure is used, and there is also in the dry winter time a copious water supply. *K. Dinter.*

(To be continued.)

HOME CORRESPONDENCE.

FROM AN IRISH GARDEN.—I have now coming into flower in the open air a fine spike of a *Yucca*-like succulent sent to me as *Beschorneria glauca* many years ago, which has proved quite hardy here so far as frost is concerned, but during one of our long wet and almost sunless winters the rain lodged in the centre and rotted the heart out of the plant; but soon five or six strong offshoots sprung up all round the central corpse, one of which is now blooming. Its stem is as bright a red as *Rhubarb*, and all up it are deep rose-coloured sheaths or bracts, each of which encloses a bunch of green buds. I can find no such variety as *B. glauca* mentioned in the books, though the foliage has a distinctly glaucous hue, so it may be *B. yuccoides*, or the *B. bracteata* of *Bot. Mag.* It is certainly not *Furcraea Bedinghausii*. I have a new *Deutzia* named *D. macrosepala* coming into flower for the first time received from Lemoine. Two of the fine set of new Japanese single and semi-double tree *Pæonies* sent out by Croux, of Chateaufort, for the first time this spring, are now in bloom with me, and are most beautiful. The best of these, *Madame G. Croux*, figured in the February number of the *Revue Horticole*, will also bloom here later on. It resembles a huge florist flower *Tulip*. *W. E. Gumbleton.*

PEACH AND APRICOT-TREE PROTECTION.—The fact that moisture and cold together are inimical to the flowers of these trees must have induced a worthy old gardener in charge of a large place in the north for many years, and who has now joined the majority, to cover the 6 feet-broad border, in which his Peach, Fig, and Apricot-trees grew, with light strawy stable-litter. This was put on after the pruning and tying of the trees were finished. He must have known that the lightly-lying litter stored the sun's heat, and gave it out during the night, much of it ascending the face of the wall. Moreover, the border was forked over after the work on the trees was done, so that moisture passed quickly away, not lying on the surface as would be the case on ground that was much trampled. As a further protection to the bloom, branches of Spruce, or Balm of Gilead Firs, were secured flat against the wall, and sparingly, just touching each other. These were put on in early spring, and remained in place till the middle of May, by which time the needles had entirely dropped from them, effecting, in fact, a very safe, thorough, and withal, gradual uncovering. The "set" was usually a good one when the preceding summer had been warm enough to ripen the wood, which was not always the case in that northern clime. Does the pungent, and to us agreeable, fragrance of the Fir deter aphides from breeding on the young shoots and leaves of stone-fruits? If this should be the case, country gardeners have a remedy ready to their hands, for we never found the tiresome insects on trees protected in the manner I have described, although the tender foliage seemed to be more than usually inviting to aphides after the Fir-branches were removed. We have Fir-tree oil as an insecticide, why not Fir-tree boughs as a deterrent? *F. M. F.*

—Were it limited to that, the majority of Peach-growers would probably go in for a short course of protection. The trees hardly need it till they are in flower. Nature, in fact, renders the closed buds of Peaches and Nectarines frost-proof, with scales and coverings admirably adapted for the purpose. To

protect closed Peach blossoms is to cover twice, that is, to coddle them, or make the bloom abnormally, unnaturally tender. And this state and condition of things is far worse and more dangerous than non-covering. But surely a safer means may be found between the two extremes, that of excessive covering resulting in an augmented tenderness, which more than neutralises any possible benefit to the heavy risk of exposing wide open naked Peach flowers to 10° or 15° of frost. Peach blossoms were not made in Britain, nor fitted unaided and alone to win the victory nor land their fruit crops in safety in a life-and-death struggle with our most capricious and erratic climate. All culture may be defined as but another name for protection, training, assistance, and there is no reason why we should not adopt means of keeping off withering winds and blighting frosts from our Peach blossoms and embryo fruits, as we do green or black-fly from the leaves and shootlets. It should be the mission of the cultivator to protect his trees and blossoms by every means in his power from all that would endanger their crops, or shorten or enfeeble their lives. Most growers agree that the shorter the period of protection, and the less of it, if sufficient, the better; but this is an altogether different matter from being assured that the protection of the blossoms of Peaches in the open air is evil, and only evil, and that continually. This is far too large and general a statement to be accepted either on any foundation of logic or of safety. Modes of culture in most gardens are largely moulded by environment. And this is emphatically so in the matter of protection. It is less a matter of abstract principle than of expediency. Mr. Carmichael says, "I never covered my wall-trees at Sandringham." True; but did he not protect them with warm brick walls, and did not the sea spare some of its latent heat to play across the face of his trees in winter and early spring? I too have seen many cases of success in Peach culture without the practice of the ordinary means of protection. But was there, therefore, no protection of walls or woods, hills or dales, rocks or mountains, rivers or seas, are these and other equally or more potent shelters or protections to be welcomed, and the flimsy covering of a few nets, Fern fronds, sprays of shrubs, over the naked blossoms of our wall trees wholly rejected or condemned. While most cheerfully accepting all my friend's facts, and having special pleasure in stating that we have seldom or never had a better Peach-grower outside or under glass than Mr. W. Carmichael, formerly of Sandringham, whose Peach-walls were the admiration of the country; still, I would caution young growers against wholly discarding protection for their Peach-trees. At Sandringham, Arundel, and Bath, Mr. Carmichael was specially favoured by his surroundings. He was also an adept in training trees, and in thoroughly maturing the wool of his Peaches and other fruits. But neither ripe wood nor strong flowers help Peach-trees on the open wall to protect their embryo fruits on a clear night, with insatiable radiation from earth to sky going on, and the thermometer pointing to 15° of frost. Spread net, scrim, canvas, or a screen of boughs between the trees and the open sky, the loss of heat from the trees is instantly checked, and the crop saved. This is equally true as the fact that, in certain localities, and under special culture, crops of Peaches may be gathered annually without the aid of the usual methods of protection. The question resolves itself into this: Are there special methods of protecting Peach, Nectarine, Apricot, Plum, Pear blossoms on walls, and other trees in the open air, worth the candle? My answer is emphatic: there are. And the grower who can, may grow and train his Peaches into model forms, and ripen wood and buds into nut-brown colour, solidity. The dormancy of the buds may safely be left to decide as to the time, the measure, and extent of the protection needed to save his crops without weakening his trees or fostering the growth of insects. *D. T. F.*

ACROPHYLLUM VENOSUM.—It is very seldom now that one sees a fine specimen of this lovely plant. When it was first introduced, I obtained a young plant of it. I grew it in Exeter peat, with a liberal sprinkling of sand and broken flints. The Exeter peat is in large sods, which should be used in the following manner:—Place them on the potting-bench, and with a strong stick break them first, then put it through an inch sieve; pick out all the Heath roots, but retain all the Fern roots. What the sieve retains is placed over the drainage, then a good sprinkling of broken flints is given, which keeps the drainage open. At the first exhibition of plants at Cheltenham, I showed a collection of twelve stove and greenhouse

plants, and was awarded the 1st prize. Many London exhibitors were there. The *Acrophyllum*, grown in a 15-inch pot, was one of my telling plants. I was offered £15 for it. Another very telling plant in my collection was *Chorizema Henchmanni*, a plant one now seldom sees. It was grown in the same compost as the *Acrophyllum*, also the *Boronia*. I was pleased in looking into the Botanic Gardens to find that Professor Balfour has made a start to grow Cape Heaths, but he tells me that he cannot purchase them now for money. I had the great privilege of being under the late W. McNab, who was the father of Heath growing, so I was pleased to find that the Professor has made a start with them, as he is very fond of them. With a view of again bringing such lovely plants into cultivation, I will be pleased to send you an article on their cultivation. When I left Crowl Hall, Bath, I had a house of over 100 of the choice hardwooded kinds. Mr. Tugwell was a great admirer of them. He had an excellent knowledge of hardwooded plants. *William Carmichael, 14, Pitt St., Edinburgh.*

WHITE BROCCOLI.—What a remarkable experience we are now having of the mildness of the past winter in the wonderful profusion of white Broccolis seen on every hand! I had thought that they must have come from the North of England chiefly, and possibly they do so; but I saw a whole wagon-load in Kingston a day or two since, showing that they had just been cut locally. We have thought that having white Broccolis in good form in the month of May showed exceptional lateness in the variety. It is now May 14, and there have just been brought into my house from a shop a couple of heads of singular firmness, whiteness, and perfection of form. These were not specially selected, but were representative of the bulk; the largest has a head of the most solid, marrowy matter possible, is so conical that the centre stands up 4 inches above the base, and the head measures 12 inches across and 7 inches in diameter. If wanted for exhibition, nothing could be more perfect, yet it is but one of thousands cut from a field. Well may we pause when what were nearly three weeks earlier presented for notice as new, and specially inferior in appearance, before regarding them as either new or late, in face of the fact that splendid heads are to be had in myriads in the markets so much later. The variety I have before me may be Late Queen, or Model, or Methven's June, or something else; but I defy anyone to furnish under any name a more perfect sample at the middle of May. But then, how rare is it that we have this wealth of white Broccoli at this time of the year! How seldom, when winters are of their ordinary severity, do we escape great injury to our white Broccolis! All lovers of good vegetables have just now much to be thankful for, and specially so have the market growers, because a merciful winter has enabled their white Broccolis to come to perfection. *A. D.*

A HEN'S FREAK.—The other day, at the seat of Chas. J. Massey, Esq., Clones Hall, Bolton-by-Bowland, a gardener who was cleaning a bed in which grows a large specimen of English Yew, discovered a hen's nest in the Yew some 12 feet from the ground, and the nest was found to contain a quantity of eggs. It is carefully made with all sorts of material, carried there by the hen. She goes to the nest regularly to lay, and no doubt expects to bring a brood from it. Although thus imitating the blackbird, she cannot forget her habits, and she cackles each time before leaving the nest, which circumstance betrays her. *W. A. C.*

A VARIEGATED-LEAVED DENDROBIUM NOBILE.—With reference to Mr. Ringham's note in your issue for May 14 (p. 299), I may say we have also a small sport, the variegation in which is very similar to that of *Dracæna Lindenii*. Mr. Ringham says that he bought the plant which produced his variegated form of the Liverpool Horticultural Company five years ago, and the plant was said to be from a new district. The parent-plant, from which I removed my small piece, is a very large one, in a 12-inch pot, and has been in this garden for a much longer period than five years; and it is just the ordinary type of *Dendrobium nobile*. *J. Farquharson, The Gardens, West Denton, Scotswood-on-Tyne.*

JUDGING AT SHOWS.—In your issue of May 14, in a paragraph dealing with the judging at the Ghent show, you call attention to the quick way in which the awards were recorded. This is nothing new, as Mr. Barron used to do the same thing many years ago in connection with the shows held at South

Kensington. "The Field" judging-book was used. This is simple in the extreme, and there is not the slightest chance of any mistake occurring, as the counterfoil kept by the judge was marked in the same way as the slip that was torn off and sent to the secretary's office in order that the clerk might enter the award against the name of the prize-winner. As fast as every class was judged it was recorded in the entry book. I have been at many shows during my life, but have never seen the judging and recording of the awards so well managed, and at the same time so correctly as at South Kensington by Mr. Barron. *An old Hand.*

MUSHROOM-GROWING EXTRAORDINARY.—I have cultivated Mushrooms in a wooden shed without artificial aid, and so numerous were they, that with the help of a boy it has taken me over three hours to gather those that were ready for use. I sold them for 1s. per pound. Four days before the photographs I send you were taken, every saleable Mushroom had been gathered. *G. Holmes, Acomb, York.* [The photographs kindly sent by our correspondent showed an enormous crop of Mushrooms of all sizes. Another photograph sent represented some very fine Broccoli cut from the open ground on February 9 last. *Ed.*]

LAWNS.—The rains which the agriculturists so much enjoy, and through the agency of which fine hay-crops are looked for, are giving a good deal of trouble to gardeners, because their lawns need mowing twice a week rather than once; that means a large amount of extra work, and no labour furnished to meet it. There is but one way in which a difficulty of this kind can be fully met, and that is in the furnishing of machines for mowing lawns that will work with much greater rapidity than the present ones do. Some day, perhaps, mechanical skill may produce mowers of such enhanced speed and usefulness, that the gardeners of that day will regard as ancient fossils the machines we now use. We must look for such improvement in the application of superior motive forces to those now furnished by animal or human power. Steam applied to the lawn-mower is a great advance; but why not electricity in the form of accumulators capable of fixing to mowers of all sizes? How heartily such application of a mysterious motive force would be hailed by gardeners. *D.*

SOME SWEET PEAS OF RECENT INTRODUCTION.—I do not think that the dwarf white Sweet Pea, Cupid, has proved a success. In my own garden at least, where I have given it a fair trial in various situations, it has proved a veritable failure; the plants growing indifferently, and the flowers being invariably destroyed so soon as expanded by rainfall. My near neighbour, Mrs. McDonall, at Logan House, tells me, that though she planted it in great quantities in her extensive gardens, her experience has been precisely the same. Its nature, manifestly, is entirely unsuited to our somewhat too humid Scottish climate, which is only congenial to moisture-loving flowers. I anticipate that the new "Pink Cupid," which hails from California, will prove much harder and more reliable than the white form of similar name, especially as there is no family connection existing between these, the latest novelty having been derived from Blanche Terry, one of the finest of the tall-growing Sweet Peas, and which has always been greatly admired, by reason of the Apple-blossom-like colour of its flowers. I should think that, for bedding purposes (for it only grows about 6 inches high), the Pink Cupid is likely to prove, unlike its white predecessor, a considerable acquisition. This season I am growing the Egyptian or "Mummy" Pea, which produces large clusters of flowers of a rosy-white hue at the end of long fragile stems, in a line with the latest of Eckford varieties; and I am certain that this arrangement will be, during the flowering season, very highly effective. The Egyptian Pea, which, I understand, came to this country in a mummy from Egypt, [No.] I possess through the kindness of Mr. Wm. Davis of Drummore, in this parish (an enthusiastic amateur horticulturist), who obtained it last year from his friend Mr. Day, the accomplished head-gardener at Galloway House. Mr. Davis describes it as unique in habit, and highly artistic in effect. It is at present growing with the strength of the strongest culinary Peas, and with great rapidity. *David R. Williamson.* [A fasciated variety merely. *Ed.*]

MICROBES IN WATER.—After reading your leader of the 7th, re the effect of fungoid microbes on cuttings, and their abundance in the air and in water, I could but wish it were in my power to experiment with boiled water in watering plants in the early seedling stage. So susceptible to damping as

are indoor-raised Cauliflowers and Stocks, so far as my experience goes, few plants raised from seed are more susceptible to this damping than these are when just about to form rough leaves. Amateur gardeners are constantly in trouble from this cause, and as often asking for advice. I wish some gardener who has to raise these plants under glass without heat—for there is less trouble when warmth can be given—would next spring test the merits of unboiled and boiled water, to see whether any difference resulted. But with respect to cuttings, damping, or being destroyed by fungus, we all know that this trouble is greatly minimised when the cuttings are of firm wood, and are not of a soft, sappy nature, and also the soil in which placed is composed chiefly of sharp porous sand. The sand facilitates root action, no doubt; but if what is stated in your leader be exact, it is now better understood that in creating porosity, the water, laden or otherwise, with fungoid-microbes, the more quickly passes away, comparatively harmless, to the cutting; whilst, if the soil be stiff and close, the water is held about the cutting, and damping caused by the fungoid germs, soon ensues. Bell-glasses may protect cuttings from contact with the atmospheric microbes, but damping is common in such cases all the same; and it is not improbable that water is the chief agent in producing that damping, as it brings the microbes directly into contact with the cut base of the cutting, which is in such case necessarily its weakest part. *A. D.*

ARTIFICIAL MANURE.—Having read in your issue of the 7th inst. the article on "The Use of Artificial Manures," I should like to state my experience, with a view to a better understanding of what seems to be a problem. I may say that all my past experience is fully in accord with the paper by J. J. Willis. I have used artificial manure on farm-land, in the nursery, and in the greenhouse and stove, and always to the immense advantage of judicious mixture of animal and artificial. Some fifteen to twenty years ago a small meadow (that had been let to a small farmer, who had done it badly) came into my possession in March, and was shut up for grass. The crop that year was so poor that a neighbouring farmer remarked when the grass was cut, that he could see a mouse run across it. The next season it was manured as follows:—About ten tons of horse-manure was carted on to the meadow, then sulphate of ammonia, superphosphate of lime, gypsum, and salt were added, the whole being well mixed up, and then spread on the land. The whole dressing was arranged to cost £3 per acre, not including labour. The result was an immense crop, that the grass had to be cut on other land to make it—it was the talk of the neighbourhood. We have always since used artificial manures in mixtures, and find it answers well. Nitrate of soda, or sulphate of ammonia, if applied by itself, and a very heavy storm follows, gets washed into the ditches. For meadow-land we mix the manures in a shed, and let the heap lay untouched for a week; and we always have a good crop of hay. The mixture is changed every year, with a view of getting a crop of Mushrooms as well as hay. In the nursery we have found that it is dangerous to leave men to use artificial manures, and have a manur-shed in which I keep it. I have lost large numbers of trees and shrubs, for when a man finds that a dressing—say of sulphate of ammonia—does good, he then doubles it, and kills the trees. So now for many years I make a mixture of which animal manures form the basis and bulk; and this is necessary, for where you have rows of trees and bulbs close together, animal manure could not be dug in even if you could get it in sufficient quantity; this is where artificial manure in mixture is so valuable, and, what in my experience, is of great advantage, it is not so soon gone, it is less soluble, and more suitable to plants when in connection with humus or animal-manure. For pot-plants in the greenhouse or stove I use as a basis about 75 per cent. of either human or cow-manure, the latter generally because of the objectionable smell of the former; we then add sulphate of ammonia, superphosphate of lime, and sulphate of lime (gypsum), in either case the mixture must be in a new wet state to dissolve the ammonia or soda; it is then allowed to dry, and thoroughly sifted several times. This mixture is found suitable for delicate Ferns, Palms, and wonderful for winter-blooming Pelargoniums. I always use gypsum to make the mixture last, and I have had this, kept dry, for years and have not found any depreciation whatever. The above is much the same as the most successful of the artificial-manure mixtures so extensively advertised. So all my experience points to artificial manure being very

valuable in mixture, and of very little value by themselves. If the German experiments are true, it seems to point to artificial manure as being useless, because if of any good to the land it must contain a quantity of manure (humus), and the denitrifying bacteria at work destroying or freeing the nitric acid, the scientific experiments seem very puzzling and contradictory; and while I read Mr. Willis' paper with pleasure as confirming my experience, the recent papers have been quite alarming, and I shall want strong contradictory evidence to shake my faith in mixtures. *J. P.*

MARKET GARDENING.

TOMATOS AND CUCUMBERS.

VINERIES and peacheries in which Tomato plants are planted in rows in the borders right and left of the central pathway must be treated expressly for the Tomatos in the matter of temperature, the object being to obtain as heavy crops of Tomatos as possible from these houses during the first two or three years following construction. The Vines and Peaches will, meanwhile, make short-jointed, sturdy growth, similar to that to be encouraged in the Tomatos, until they have set one or two clusters of fruit each. After this a warmer and moister atmosphere may be afforded them, without fear of causing an over-luxuriant growth. Until the fruiting period, a night temperature of 50° to 55° will be ample, and the ventilators should be opened a little when the thermometer registers 60° in the daytime. Keep the soil uniformly moist about the roots of the plants, the atmosphere being kept rather dry than moist until the flowers have set. A 2-inch deep top-dressing of short dung should be laid on the borders.

The plants should be afforded support when about 9 inches or a foot high. Soft string may be fastened somewhat loosely round the stem of each plant, fairly close to the ground, and then secured perpendicularly to the wires of trellis provided for training Vines and Peaches to; but should this provision not yet have been made, $\frac{3}{4}$ -inch tin-tacks driven into the side of the rafters immediately above the rows of plants, to which the top ends of the strings may be secured, will answer admirably. All side-shoots should be pinched out close back to the main stems when adjusting the strings.

Cucumbers should be grown at express rate in order to obtain the greatest possible number of good fruits from the plants. The plants must be afforded a light rich rooting medium to start in, and a uniformly hot and moist atmosphere, never, if possible, permitting the night temperature to fall below 70°, and allowing it to run up to 95° or 100°, with sun-heat, providing that such a temperature be accompanied with a moisture-charged atmosphere.

As soon as the roots are seen through the surface of the soil, lay on it a top-dressing of about 3 inches deep of good manure. Should stable-manure, including perhaps peat, moss-litter, or sawdust surcharged with ammonia, be used, the roof-ventilators should be left slightly open for a night or two to admit of the fumes arising from the manure consequent upon being placed in a high temperature to escape. The Cucumbers require frequent attention as to the pinching and training of the growths in order to maintain the plants in a vigorous, free-bearing condition up to the time they have to make way either for a fresh lot of plants or for Tomatos—say the middle of July—for yielding fruit during October, November, and early part of December. *H. W. Ward, Rayleigh.*

NEW HYBRIDS OF DODECA- THEON: "GYROSELLE," OR AME- RICAN COWSLIP.

MONS. E. THIÉBAUT, of 30, Place de la Madeleine, Paris, exhibited at the summer show of the National Horticultural Society of France in 1897 no fewer than twenty-six named varieties of these pretty free-blooming hardy herbaceous plants of his own raising, which were much admired, and favourably noticed in the number of the *Revue Horticole* for

August 16, with an interesting descriptive article by M. Jules Rudolphe. Twelve of these varieties are now nicely in flower in pots in my greenhouse. Although perfectly hardy so far as frost is concerned, our long wet winters in the South of Ireland do not suit these plants, and if left in the open border they soon disappear, and rot away at the crown. They are well worth the trouble of pot-culture in a cold-frame, but will not stand forcing at all. The varieties now in flower with me are named as follow:—

D. multiflorum.—A most profuse bloomer, with nine spikes of small rosy flowers.

Sir Waller Scott.—Has one very strong, stout stem, bearing much the largest head of bloom of the lot. The flowers are white with a yellow centre, surrounded with a pretty rosy ring.

Longfellow.—One of the prettiest of the set, with large rosy-white flowers on two spikes.

Le Géant.—The tallest flower-stem of all, bearing a rather thin head of pretty rosy-white flowers. This was the first to open, and seems to be a very free seeder.

Clarinda.—Medium height, with two flower-spikes of pure white flowers with dark eye.

Snowflake.—A very strong grower, bearing four spikes of good-sized, pure white flowers with dark eye; quite one of the best of the lot.

Perfection.—An exceedingly pretty flower, of good size, of a pale rosy-lilac colour, with good yellow-and-black eye, edged with rose-colour. Two spikes of flower.

Donna Maria.—A good-sized flower, of a light rose colour, with large, distinctly-marked eye.

Mont Blanc.—A dwarf but strong grower, with pure white flowers, have a yellow and maroon eye.

Bucphalus.—A good large flower, with stem of medium height, and flowers of a light shade of rose colour, and a good distinct eye.

Voulet.—A medium-sized flower, of a deep shade of rosy-lilac. This is the second most profuse bloomer, and it bears five stems.

Rose Queen.—A rather tall, slight-stemmed variety, coming nearer to the well-known *D. media* than any other. *W. E. Gumbleton, Belgrove.*

SCOTLAND.

EDINBURGH BOTANIC GARDEN.

PRIMULAS.—The collection of these plants has always been an attractive one here, and of late years many additions have been made. For the past two years spots have been found for them on the rockery, where they are readily inspected, especially as arranged in clumps or patches convenient for comparison. Of those in flower recently I may mention the following:—*P. viscosa nivalis*, a large mass surmounting a piece of rockwork. This is most vigorous, the foliage being the picture of health, although scarcely visible for the masses of white flowers, nestling among the leaves. *P. v. decora*, a dark-flowered variety well represented, forms a strong contrast to the first named. *P. frondosa* is throwing up a quantity of pale lilac compact inflorescences from among the small silvery-foliage—a desirable plant for cultivating in pots for cool greenhouse decoration. The distinct *P. marginata* is also in quantity, the flowers are variable, and several varieties are grown, some of which are of light and others dark shades of blue. The flowers are raised but slightly above the foliage. *P. m. cœrulea* and *P. m. grandiflora* are also in bloom.

P. Auricula marginata is a very different plant to the last-named, having broad leaves with an entire margin, around which runs a line of the silvery meal common to *P. Auricula*. The type species is represented by a patch of about one yard across; it is a strong-growing plant, well worthy of cultivation. *P. viscosa* and its varieties are in flower. The variety *P. v. coccinea* is a distinct form, with dark coloured flowers, though hardly possessing the

colour its name implies. *P. v. Balfouriana* and *P. v. decora* are also pretty plants. The dwarf-growing *P. minima*, a native of the Alps, has deeply-divided leaves, and the flowers rise just above the foliage; it is remarkable for its smallness, a number of the plants being required to form a large mass.

The brightest Primulas recently in flower are the Himalayan *P. rosea* and its variety *grandiflora*, the variety very dark, and more robust than the type. These are of easy culture in a damp soil, and deserve a place in any garden. *P. rosea* may be brought into flower a few weeks before its usual season by growing it in a greenhouse in the early spring, and it is then a most useful decorative plant. *P. Peyritschii* and *P. intermedia*, two hybrids, are deserving of notice, the latter with purplish flowers, the centre of which are yellow. Many others, such as *P. capitata*, *P. scotica*, *P. Stuarti purpurea*, and many more, will continue the series of this pretty spring-flowering genus, which commenced with a good display of *P. deutilculata* and its forms very early this season, on account of the mildness of the winter.

VIBURNUM MACROCEPHALUM.

When in flower, this plant is sufficiently ornamental as a solitary lawn plant, or as a subject for training on a wall of a corridor, as is done here. Some of the inflorescences are more than 6 inches across, and of a pure white when fully open, but with a greenish tint when young, and somewhat like a monstrous Gueldres-Rose. It is sparse of foliage, and the peculiar habit of branching fits it exactly for training on a wall. Small plants in pots form nice decorative objects for the greenhouse, and the flowers last for several weeks. The plant does well in loamy soil, but is not of rapid growth.

ACIDANTHERA TUBULOSA.

This is a pretty spring-flowering Iridaceous plant, which is useful for the greenhouse, and differs from most garden flowers open at this season. It is a plant of easy culture, and prefers a rather heavy loamy soil. The corms are small, and a dozen or so in a 5-inch pot make a good display. The linear foliage, about a foot high, is narrow with a thickish mid-rib, and above the leaves rise the flower-spikes which bear from two to five flowers of about 2 inches across, the segments having a pinkish tinge upon a white ground. The stamens are about half as long as the segments, and the anthers are violet-coloured. The plant is a native of the South-west parts of Cape Colony.

FERRARIA ANTHROSA.

The flowers of these remarkable plants are perhaps most attractive on account of their shape and peculiar colouring. The plant is a strong grower, and the flower-scape bears a succession of blooms of dull-purplish and brown tints, with the margins of the segments crumpled. The entire genus consists of half-hardy plants, which may be grown in any cool greenhouse or pit. All of the species (seven in number) are natives of the Cape Colony, with the exception of one which comes from Angola, viz., *F. Welwitschi*.

As pot plants, Ferrarias enjoy an abundance of water whilst growing, and a severe drying in a cool greenhouse from the time of the corms losing their leaves until growth recommences. The plants now in flower here have remained quite dormant for two years. *R. L. H.* [The above notes were written at the beginning of the month. Ed.]

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

MAY 10.—Present: Dr. M. T. Masters (in the chair); Mr. A. Sutton, and Rev. Professor Henslow, Hon. Sec.

Morchella, *Species*.—Some specimens were sent of a small species of this fungus, which appeared in a garden-bed; but the locality was not recorded.

Peas, Decayed.—Mr. Cooke, The Croft, Detling, Maidstone, forwarded some young plants of the American Wonder, which had failed to grow. They were sown last November, and while many are doing well, others close by became

sickly yellow color. Mr. Sutton observed that his experience was, that no wrinkled Pea, such as the above, was suitable for autumn sowing; the skin being more delicate than that of round Peas, will not stand the winter so well. This was, therefore, the probable cause of failure.

Freesia Bulbs Arrested.—Mr. F. Egbert Holland, Satis House, Yoxford, sent some bulbs which had been planted last July, had never thrown up any leaves, but had formed fresh bulbs upon the old ones, which had withered. It appeared to be a case common in Potatoes, when it is called super-tuberation, fresh tubers being formed at the expense of the old one. It was possibly due to the Freesia bulbs having been planted at the wrong time of the year, energy being expended in a wrong direction.

Cineraria Hybrids.—Mr. James, Woodside, Farnham Royal, Slough, sent a collection of hybrids raised between (*C. cruenta* × *Garden C.*) ♂ × *lanata* ♀. They were a small selection of a numerous progeny, the greater number of which were said to resemble the garden form; but the present ones had a tomentose stem, branches, and the under surface of the leaves, which last resembled in form those of *C. lanata*. The blossoms were rather small, some being a pure white, others mauve, and they were remarkable for their abundance. Unfortunately, the best plant with white flowers refuses to set much, if any seed; but it was hoped that Mr. James would persevere and try to establish a new race, which would certainly be attractive from the silvery appearance.

Begonia Leaves Diseased.—Mrs. Caddy, Lion Gate Gardens, Richmond, sent some leaves of these plants decayed round the margins. They were forwarded to Mr. W. G. Smith for further examination.

TULIP EXHIBITION AT THE ROYAL BOTANICAL GARDENS.

MAY 11.—This exhibition was held in connection with the first summer show of the Royal Botanic Society, and was small in extent and not conspicuous for good quality, and this due not to any fault of the exhibitors, but to the weather, which had been such that it was not possible for the flowers to expand fully by the above date. Many of the blooms staged had been placed in heat to expand after being cut, and they showed traces of the process. A week or ten days later would have made all the difference. The flowers were staged in the annex to the large tent where they could be seen to the greatest advantage. There were four collections of twelve Rectified Tulips, the 1st prize of a Silver Cup was awarded to Mr. A. CHATER, Cambridge, who had of feathered bizarre, R. Headly and Masterpiece, flamed bizarre Samuel Barlow and Orion, feathered bybloemen John Linton and Sarah Headly, flamed bybloemen Duchess of Sutherland and Mrs. Jackson, feathered roses Modesty and Guido, flamed roses Glory of Stapleford and one unnamed; 2nd, Mr. A. D. HALL, Wye, Kent, his best flowers were flamed bizarre Sir Joseph Paxton and R. Yates, feathered bizarre Duke of Devonshire, flamed bybloemen Conningsby Castle and Duchess of Sutherland, flamed roses Annie McGregor; 3rd, Mr. C. W. NEEDHAM, Royton, Oldham; 4th, Messrs. BARR & SONS, King Street, Covent Garden.

With six varieties, Mr. J. W. BENTLEY, Stakehill, Manchester, was 1st, having feathered bizarre Wm. Wilson, flamed bizarre Lord Stanley, feathered bybloemen Bessie, flamed bybloemen Adonis, feathered rose Comte de Vergennes, flamed rose Annie McGregor. Mr. A. CHATER was 2nd, and Mr. C. W. NEEDHAM 3rd. The following class for six varieties did not fill, nor that for three feathered Tulips; and while all the flowers staged in the various classes were poor in quality, the feathered varieties were particularly so. Mr. J. W. BENTLEY had the best three-flamed varieties, staging bizarre Lord Stanley, bybloemen King of the Universe, and rose Mabel.

The first of the Samuel Barlow Memorial Prizes, consisting of a special Silver Medal, for a pair of rectified Tulips, was won by Mr. J. W. BENTLEY, who had feathered bizarre Duke of Devonshire and flamed bybloemen San Josef; Mr. A. D. HALL took the 2nd prize with flamed bizarre Sir J. Paxton and feathered rose Comte de Vergennes.

The premier Tulip was feathered rose Industry, shown by Messrs. BARR & SONS; and the premier flamed Samuel Barlow staged by Mr. CHATER.

The Breeder Tulips, though limited in quantity and small in size, were striking, especially some of the roses. Mr. A. D. HALL was 1st with six, his southern locality evidently favouring him; Messrs. BARR & SONS were 2nd; and Mr. J. W. BENTLEY 3rd. Mr. J. W. BENTLEY had the best three; Mr. C. W. NEEDHAM was 2nd.

NEWCASTLE AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.

MAY 11.—The monthly meeting of this Society was held at 25, Westgate Road, on the above date. There was a large attendance of members, and Mr. JNO BULLOCK presided.

Special Certificates were awarded to Mr. JAS. NICHOLSON, Ashfield Towers, Gosforth, for a collection of Schizanthus; and to Mr. JAS. RENWICK, Oakwood, for a collection of Polyanthus. Mr. MURRAY, of Oakwood, read an excellent paper entitled, "Hardy Trees and Shrubs in Landscape Gardening," which was followed by a discussion, in which many took part.

ISLE OF WIGHT HORTICULTURAL IMPROVEMENT ASSOCIATION.

MAY 14.—The monthly meeting of the above association was held at Newport on the above date, Dr. J. Groves, B.A., J.P., presiding over a large attendance of members. Mr. A. Key gave an interesting and instructive experimental lecture on "Plant Foods: their Detection in Vegetables and Soils." After a few preliminary remarks respecting plant-foods, Mr. Key took "Phosphates" as the subject for the evening, and showed by experiments that seeds and fruits contained large quantities of phosphates; and also showed how to ascertain its presence in soils and manures. An unanimous vote of thanks was accorded Mr. Key for his valuable lecture.

Various exhibits came from Mr. G. Nobbs, gr. to Ilea Majesty at Osborne; Mr. J. Nicholas, gr. to Mrs. GRAY, Kintore, Sandown; and Mr. J. J. Lemington, gr. to Dr. Coomes, Newport. The first excursion of the season took place to Appley Towers and St. John's Vicarage, Ryde on May 19.

READING & DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

MAY 16.—The first meeting of the summer season was held on the above date, when the chairman of the Association, Mr. Turton, presided over a good attendance of members.

The subject for discussion was Hardy Flowers, including Shrubs and Bulbs. This was introduced by Mr. Townsend, gr. to Sir WILLIAM FARRER, Sandhurst Lodge, who said that he should refer principally to those varieties which made the garden look gay during the early months of the year, and only those which were grown in the garden under his charge. The following varieties were touched upon:—Flowering shrubs, Amygdalis, Abelia, Andromeda, Buddleia, Berberis, Cydonia, Cerasus, Crataegus, Ceanothus, Choisya, Cytisus, Carpentaria, Chimonanthus, Calycanthus, Cistus, Cornus, Deutzia, Daphne, Diplopappus, Chrysophyllum, Escallonia, Forsythia, Garrya elliptica, Genista, Iberis, Jasmine, Kerria, Laburnum, Lycopodium, formosa, Ledum, Mespilus, Magnolia, Nymphaea, Pyrus, Prunus, Philadelphus, Ribes, Spirea, Sambuca, Ulex, Viburnum, Veronica and Weigela. Bulbs: Hyacinths, Tulips, Narcissus, Crocuses, Aconit. s. Chionodoxa, Tritealis, Scilla, Grape Hyacinths, Alliums, Ornithogalum, Leucojum, Dog's-tooth Violets and Trilliums. Flowers (flowering from February till the early part of May: Helleborus, Violets, Arabis, Aubrietia, Daisies, Wallflowers, Myosotis, Primroses, Polyanthus, Alyseum, Doronicum, Alpine Phlox and Primula Sieboldi. A discussion followed. An interesting feature of the meeting was the large display of cut-flowers, including Primula Sieboldi, Daisies, Myosotis, Tulip, Trilliums, Pansies, Lily-of-the-Valley, Wallflowers, Narcissus, Auriculas, Honeysuckles, Roses (outdoor growth), &c. These were contributed by Mr. TERTON, Maiden Erlegh Gardens, Mr. W. Smith, gr. to Miss NEIL, Greenbank, and Mr. TOWNSEND, the latter exhibiting also a splendidly-grown Anthurium, showing forty-five spathes.

HORTICULTURAL SHOW AT THE ALEXANDRA PALACE.

MAY 18, 19, 20.—An exhibition was opened on Wednesday last at the Alexandra Palace, Wood Green; Mr. R. Dean acting as Secretary and Superintendent.

There were fourteen classes, but only in one of these was there competition, while in several others there was no exhibit at all, yet the plants and flowers that were staged were for the most part of good quality, and being arranged in the Central Hall (a miniature Crystal Palace), they could be very conveniently inspected. A fully satisfactory exhibition could hardly have been expected, in view of the fact that the proximity of the Temple Show of the Royal Horticultural Society and the Manchester Show, was so evident at the last meeting held in the Drill Hall. The Alexandra Palace, too, after being closed for some nine years previous to its re-opening last Easter, has its reputation to win, and if it is to be a success as a public pleasure ground and resort, very much work must be done before it can present anything like a smart appearance. Nevertheless the buildings and grounds would appear to possess vast capabilities, and it will be a pity if these are not turned to account in some shape or form.

The group of flowering and foliage plants upon a central ground space of 250 feet, was from the nurseries of Messrs. JOHN FEE & SONS, Roupell Park, Norwood Road, London, S.E., and was a worthy exhibit. It included finely-grown Cordylines, a few Caladiums, Palms, Ferns, and a fine lot of flowering plants, among which were single and double flowered tuberous Begonias, Boronias, Ericas, &c. Messrs. FEE had 1st prize too for nine fine foliage plants.

The only group of Orchids in flower was one from Mr. Geo. Cragg, gr. to W. C. WALKER, Esq., Percy Lodge, Winchmore Hill, N. In this group we noticed several good forms of *Odontoglossum crispum*, and some finely-flowered plants of *Oncidium Marshallianum*. Mr. Cragg was also an exhibitor of twenty-four bunches of cut flowers, several of these being Orchids.

The 1st prize for a collection of cut flowers was taken by Mr. AMOS FERRY, Hardy Plant Farm, Winchmore Hill,

London, N., and naturally the flowers were from the outdoor garden, a number of varieties of *Iris pumila* being conspicuous. In addition to these were flowers of some of the showier hardy plants, including a few pretty hybrid Geums.

For Roses, Mr. GEO. MOUNT, of Canterbury, had 1st prizes in two classes, in one case showing twelve blooms, and in the other twenty-four blooms. Catherine Mernet was the variety in best condition, and a bloom of Bridesmaid was quite of noticeable quality.

The class for three Bouquets was the only one that was competed. In this case there were three exhibitors, and Messrs. PERKINS & SONS, Coventry, were decidedly 1st, each of the bouquets being in the best taste.

NON-COMPETITIVE EXHIBITS.

Mr. S. MORTIMER, Rowlage Nurseries, Farnham, obtained a Gold Medal for a capital lot of Cucumbers and Tomatoes, five or six cucumber fruits of each of the following varieties being staged:—Sutton's A 1, Rochford's Market, Sutton's Peerless, Improved Telegraph, Lockie's Perfection, Epicure, Pride of the Market, Matchless, and Progress. The ten boxes of Tomatoes represented the varieties Conqueror, Conqueror Improved, Abundance, and Mitchell's Hybrid.

Mr. L. H. CALCUTT, Fern Bank Nursery, Stoke Newington, had some pretty table decorations, in which blooms of Spanish Irises were a conspicuous feature. Mr. J. WILLIAMS, 4A, Oxford Road, Ealing, also exhibited table decorations.

A large Gold Medal was awarded Messrs. W. CUTBUSH & SONS, Highgate Nurseries, London, for an interesting circular group of choice flowering and foliage plants arranged upon the floor of the hall. This included Azaleas, Ericas, Hydrangeas, and other species that Messrs. Cutbush always exhibit creditably.

A table was furnished with succulents by Mr. GEO. BOURNE, Grove Villa, High Road, New Southgate, N., the only plants in bloom being *Phyllocactus* and *Echinopsis Pentlandii*.

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, had a gay group of flowers upon a table, special features in which were the Rhododendron blooms of varied tints, Tulips, and sprays of Azalea mollis.

From Mr. THOS. S. WARE, Hale Farm Nurseries, Tottenham, was a very large exhibit of hardy flowers and hardy plants in flower, the latter being shown, for the greater part, in pans. Those filled with *Primula involucrata*, *Ranunculus pyrenaica*, *Anthemis Aizoon*, *Saxifraga Campopis*, *Doronicum Clusii*, *Geum coccineum plenum*, *Dodecatheon splendens*, and *Darlingtonia californica*, were most noticeable.

Messrs. WOOD & SON, of Wood Green, had little difficulty in making a display of garden requisites at a spot so near their headquarters. This they did, and the table representing the firm overflowed with articles of necessity to the gardener, including many of their specialties.

Messrs. W. EDWARDS & SON, Nottingham, exhibited ornamental vases for Ferns and similar plants; and another table was devoted to a display of Ichthemic Guano.

MARKETS.

COVENT GARDEN, MAY 19.

[We cannot accept any responsibility for the enjoind reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantum, p. doz.	4 0-12 0	Foliage plants, per	
Aspidistra, per doz.	12 0-30 0	dozen	12 0-36 0
— specimen, each	5 0-15 0	Fuchsias, per doz.	6 0-9 0
Azalea, per dozen	24 0-36 0	Heliotropes, p. doz.	7 0-9 0
Calceolaria, per doz.	8 0-12 0	Hydrangea various	
Cineraria, per doz.	6 0-9 0	per doz.	10 0-24 0
Coleus, per doz.	4 0-6 0	Liliums, various,	
Dracaena, each	1 0-7 6	per dozen	12 0-30 0
— various, p. doz.	12 0-24 0	Marguerites, p. doz.	6 0-12 0
Ericas, various, per		Mignonette, p. doz.	4 0-6 0
dozen	12 0-30 0	Palms, various, ea.	2 0-10 0
Evergreen shrubs,		— specimens, ea.	10 6-34 0
in variety, doz.	6 0-24 0	Pelargoniums, doz.	12 0-18 0
Ferns, small, doz.	1 0-2 0	Rhodanthe, per doz.	5 0-6 0
— various, p. doz.	5 0-12 0	Scarlets, per doz.	4 0-8 0
Ficus elastica, each	1 0-7 6	Spiraea, per dozen	6 0-9 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Apples, Tasmanian,		Grapes, English,	
cases, various,		Hamburg, lb.	2 0-2 3
comprising		— Channel Isles,	
Sturmer, N. Y.		per lb.	1 6-2 0
Pips, Adams'		— Belgian, per lb.	1 0-1 6
Pearmain, Sc.		— Muscat, per lb.	5 0-8 0
Nonpareil, F.		Gooseberries, per	
Crabs, &c.	10 0-15 0	sieve	7 0-8 0
— South Australia,		Melons, each	1 9-2 6
lians, compris-		Nectarines, doz.	12 0-18 0
ing Wellingtons		Peaches, per doz.	
and various		(according to	
sorts, per case	15 0-20 0	size)	15 0-24 0
Bananas, bunch	8 0-15 0	— Second quality	4 0-3 0
Cherries, per box	1 3-2 6	Pines, each, from	2 0-4 6
— sieves	7 0-8 0	Strawberries, p. lb.	2 6-4 0
— flats	0 0-0 0	— 2nd quality	1 0-1 6
Figs, per dozen	4 0-6 0		

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arums, 12 blooms...	3 0-4 0	Orchids:—	
Azalea, doz. sprays	0 6-0 9	Cattleya, 12 bms.	6 0-9 0
Bluebells, doz. bun.	0 9-1 0	Odontoglossum	
Bonvardias, pr. bun.	0 6-0 8	crispum, 12 bm.	2 0-4 0
Carnations, pr. doz.		Pelargoniums, scar-	
blooms	1 0-3 0	let, per 12 bun.	3 0-6 0
Cowslips, doz. bun.	1 0-1 6	— per 12 sprays...	0 4-0 6
Encharis, per dozen	3 0-4 0	Primroses, per 12	
Gardenias, 12 bms.	1 0-3 0	bunches	0 9-1 0
Gladioli, white, doz.		Roses, Tea, per doz.	0 6-1 0
sprays	0 6-0 9	— yellow (Pearle),	
Lilac, Fr., p. bunch	3 6-4 0	per dozen	1 0-2 0
Lilium Hartii, per		— pink, per doz.	3 0-6 0
doz. blooms	2 0-3 0	— Safrano, p. doz.	1 0-2 0
Lily of the Valley,		— red, per dozen	2 0-4 0
dozen sprays	0 6-1 0	Stephanotis, doz.	
Maldenhair Fern,		sprays	2 0-3 0
per 12 bunches...	4 0-8 0	Tuberose, 12 bms.	1 0-1 6
Mignonette, 12 bun.	2 0-4 0	Tulips, 12 bunches	3 0-6 0
Narcissus, various, per		Violets, 12 bunches	0 9-1 0
dozen bunches	1 0-2 6	— Parme, French	2 0-3 6
		Wallflowers, 12 bun.	2 0-3 0

GROUCH-BLOOM IN VARIETY

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Asparagus, English,		Leeks, doz. bunches	1 6-2 6
natural, p. bun.	3 0-4 0	Lettuce, Cabbage,	
— Worcester	1 0-1 3	per dozen	0 6-0 10
— English, Sprue,		— Coe, per doz.	1 6-2 6
bunches	0 6-0 6	Mint, per dozen	
— Victoria, large	6 0-7 6	bunches	2 0-2 6
— Argentinil	4 3-0 0	Mushrooms, per lb.	0 6-0 8
— Spanish, and		Onions, Egyptian,	
various	0 6-1 0	bags	6 9-0 0
— Tonlouse	1 3-1 9	— Green, per doz.	
Artichokes, Globe,		bun.	1 6-2 6
per doz.	2 6-3 6	— new Fr., dozen	
— Jerusalem, sieve	1 0-0 0	bunches	4 0-0 0
Beans, English		Parsnips, per bag	1 6-0 0
(Dwarf), lb.	1 0-0 0	Parsley, per sieve	0 9-0 0
— Channel Islands,		— p. doz. bunches	1 0-1 6
per lb.	1 0-0 0	Peas, flats	2 6-3 6
B. Beans, flats	4 6-0 0	— Telephone, lb.	0 9-1 0
— paper pkts.		Potatoes, Channeled	
(dwarf)	0 5-0 0	Isles, Kidneys,	
Beetroots, p. bush.	2 6-0 0	cwt.	20 0-21 0
— p. tally of 60	4 0-0 0	— Malta Kidneys,	
Broccoli, per dozen	0 6-1 0	per cwt.	16 0-18 0
— crates	2 0-6 0	— Round, cwt.	12 0-13 0
— pot	1 0-0 0	— Canary Kids,	
— bushel	0 6-0 0	per cwt.	16 0-18 0
Cabbage, open, doz.	0 6-0 8	— Lisbon Round,	
— tied, p. tally	0 9-1 0	per box	6 6-0 0
— bush	0 6-0 0	Radishes, Round,	
— pots, open	1 0-0 0	per doz. bun.	
Cress, doz. punnets	1 6-0 0	(home grown)	0 8-1 0
Coleworts, or Greens,		— per tally	2 6-3 0
per bushel	0 6-0 0	Rhubarb, doz. home-	
Carrots, in bags,		grown, natural	1 0-2 6
washed	2 6-3 0	Salad, small, pun-	
— in bunches	2 0-0 0	nets, per dozen	1 3-0 0
— New, bunches,		Shallots, per lb.	0 2-0 0
per dozen	5 0-6 0	Spinach, p. bush.	0 6-0 9
— Round, per		Tomatoes, Eng. lb.	0 6-0 9
bunch	0 4-0 5	— Channel Isles,	
Celery, old, p. bund.	1 0-1 6	per lb.	0 6-0 0
Cucumbers, p. doz.	2 0-3 6	— Canary, deep	
Endive, new, p. doz.	1 6-0 0	boxes	2 6-4 0
Garlic, per lb.	0 4-0 0	Turnips, old, doz.	
Horseradish, foreign		bunches	2 0-0 0
per bundle	0 9-1 0	— new French	0 6-0 8
— Cheshire (loose),		Watercress, p. doz.	
p. doz.	2 0-0 0	bunches	0 4-0 8

REMARKS.—The shelled Pea merchants are now getting busy, the ruling price is about 2s. per quart. Asparagus, home-grown, in large quantities are coming, but only of ordinary size, nothing to command high price. Broccoli and Cabbage are still plentiful and prices low. Spring Lettuce and Spinach are soon to arrive, then good-bye to the winter sorts. Gooseberries are coming now in sieves, and prices may reasonably be expected to become lower before the week ends; any really fine specimen fruits now command good prices. The South Australian Apples are certainly finer than Tasmanian. Some Wellingtons I saw from South Australia looked a fine luscious fruit, of good size, and more like dessert than culinary. The St. Michael Pines are plentiful, well-grown, fine fruits.

POTATOES.

Supplies of old Potatoes rather more limited, and prices have tightened a shade. Dunbar Maincrop, 150s. to 155s.; other Ware, 120s. to 140s. per ton. Foreign Ware, 4s. 6d. to 6s. per bag; Jersey New Potatoes, 18s. to 20s.; Lisbon, 10s. to 11s.; Malta and Canary Kidneys, 14s. to 17s.; Malta Rounds, 12s. per cwt. John Bath, 32 and 34, Wellington Street, Covent Garden, W.C.

SEEDS.

LONDON: May 18.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that to-day's seed market, as is usual at this time of the year, was very thinly attended, with but little business doing. Sowing orders are now about over. More money is asked in Germany for White Clover seed. White Mustard seed, in consequence of some export orders coming to Europe from America, is dearer; the Californian Mustard crop is said to be a failure. Rape seed keeps steady. There is no change this week in Bird-seeds. Florida Velvet Beans realise 2s. per lb. Full prices are asked for Peas, Haricots, and Lentils. The Board of Trade Returns give the imports of Clover and Grass seeds into the United Kingdom for the four months of this year, ending April 30, 1898, as 203,798 cwt., value £295,664, as against 162,067 cwt., value £329,155, for the corresponding period of 1897.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending May 14, and for the corresponding period of 1897, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1897.		1898.		Difference.
	s. d.		s. d.		
Wheat	27	11	45	11	+ 18 0
Barley	20	2	27	1	+ 6 11
Oats	17	1	21	1	+ 4 0

(Remainder of Markets carried forward to p. xi.)

THE WEATHER.

[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named; and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	TEMPERATURE.				RAINFALL.		BRIGHT SUN.			
	ACCUMULATED.				(More +) or less (−) than Mean for the Week.	No. of Rainy Days since January 2, 1898.	Total Fall since Jan. 2, 1898.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 2, 1898.	
	Above (+) or below (−) the Mean for the week ending May 14.	Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since January 2, 1898.						Below 42°, difference from Mean since January 2, 1898.
0	5	27	15	+ 86	− 228	4	106	24.4	31	26
1	3	39	11	+ 89	− 237	2	79	9.8	30	29
2	1	40	3	+ 131	− 216	0	69	6.9	29	28
3	1	49	0	+ 65	− 201	1	63	5.9	29	30
4	1	53	0	+ 62	− 215	1	64	6.0	33	29
5	0	63	0	+ 75	− 239	7	60	6.8	33	32
6	2	39	5	+ 102	− 218	3	90	15.3	36	31
7	2	41	0	+ 103	− 237	9	75	11.9	37	34
8	1	55	0	+ 77	− 154	5	72	11.2	37	36
9	2	41	1	+ 96	− 166	3	93	13.2	35	31
10	1	54	0	+ 105	− 131	2	70	13.1	33	33
*	1	66	0	+ 184	− 93	9	83	8.6	34	39

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending May 14, is furnished from the Meteorological Office:—

"The weather during this period again was very changeable, frequent showers or steady rain alternating with intervals of clear sky. Thunder and lightning were experienced in some parts of north-eastern and south eastern England on Thursday.

"The temperature was just equal to the mean in 'England, S.' but below it in all other districts; the deficit was slight generally, but amounted to 3° in 'Scotland, E.' and to 5° in 'Scotland, N.' The highest of the maxima occurred during the earlier days of the period, and ranged from 69° in 'England, S.' (at Southampton), to 59° in 'Scotland, N.' The lowest of the minima, which were recorded on the 13th, ranged from 26° in 'Scotland, N.', 28° in 'Scotland, E.', 30° in 'England, N.E.', and 31° in Ireland, to 34° over the central and western English districts, and to 41° in the 'Channel Islands.'

"The rainfall was more than the mean in all districts excepting 'England, N.E.' The excess was very slight over the eastern and central parts of Great Britain, rather considerable in most other places, and large in 'England, S., the 'Channel Islands,' and 'England, N.W.'

"The bright sunshine just equalled the mean in 'England, N.W.' and 'Scotland, W.' but was less in all other districts, the deficit being most striking in 'England, E. and S.' and the 'Channel Islands.' The percentage of the possible duration ranged from 37 in 'England, N.W. and S.W.' to 29 in 'England, N.E. and E.'"

GARDENING APPOINTMENTS.

Mr. W. LEECH, for the past three years Foreman in the Garden, Ramsey Abbey, Huntingdon, as Gardener to Sir RALPH HARE, Gressen Hall, Norfolk.

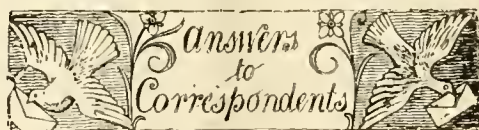
Mr. WM. KITCHEN, for the past two years Foreman in the Gardens at Moor Park, Farnham, Surrey, as Gardener to Mrs. JOHNSTON FOSTER, at the same address.

Mr. ARTHUR W. WITT, for the past six years Gardener at Portobello House, Kingsdown, Sevenoaks, as Gardener to CECIL DREW, Esq., The Mole House, Hershams, Walton-on-Thames.

CATALOGUES RECEIVED.

ISIDOR SCHOPFER, Linz-on-the-Danube, Austria—Seeds, Roses, Palms, &c.

W. J. GODFREY, Exmouth, Devon—New Winter-flowering and Tree Carnations; also, American varieties.



AZALEA MOLLIS: W. B. Something is wrong with the method of cultivation pursued. Perhaps they have lacked water at the roots, and that this is the cause of the buds dropping.

CUCUMBERS TURNING YELLOW AT THE TIPS: Oron. The result of a check to growth—which may be due to a variety of causes.

DENDROBIUM CARINIFERUM: Veritas. Grow the plant in a warm moist house until the growths are completed, then place in a cooler and more airy one until the growing season comes round again.

EARWIGS IN A SEASIDE BUILDING: A. B. B. You might find Richard's X L All serviceable in ridding the house of these creatures. For his address con our advertisement column. It will not injure any plant, but it must not be inhaled.

GRAPES: R. K., Epsom. The berries are affected by rust, which may have been caused by the young berries having been touched by something, or more probably by cold draughts. The berries will remain permanently disfigured.

INSECTS: J. A. Myriapods injurious to plants. Trap them with slices of Carrot.

MELONS AND STRAWBERRIES: W. B. The first named would not give satisfactory results in a greenhouse. It needs bottom heat of not less than 80°, and much top heat. Strawberries to ripen in May and early June would give good returns if placed in a light position in a greenhouse.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—E. B. We cannot be sure of the identity of your plant from the specimen received. If you have any others, let them grow for a time.—W. F. Olearia Gunniana.—R. H. N. The varieties of hybrid Rhododendrons are so numerous we cannot undertake to name them. Send to some nurseryman who grows these plants largely.—E. A., Norwich. The plant from Darjeeling is Cymbidium Devoulaum.—W. C. B. The yellowish-white flower is *Miltonia flavescentis*; the other a small *Dendrobium crepidatum*. Neither is of any special value, though both are pretty garden plants.—C. W. D. The shoots sent are those of *Cytisus praecox*. C. praecox came up in a bed of seedlings of C. purpurea at the Warminster Nurseries, and probably is a cross between that species and C. albus; see *Gardeners' Chronicle*, May 22, 1897, p. 340.—Bucks. The Orchid is *Laelia purpurata*; the other specimen, *Biota Sieboldii*.—M. W. 1, *Bifrenaria tyrianthina*; 2, *Pleurothallis longissima*; 3, *Acalypha marginata*; 4, *Aralia Guilloylei*; 5, *Anthericum lineare variegatum*; 6, a form of *Adiantum capillus-veneris*; 7, *Campylobotrys regalis*.—J. B. *Prunus Padus* (Bird Cherry).—Gardener. 1, *Phlox subulata*; 2, *Lithospermum fruticosum*; 3, *Phlox subulata frondosa*; 4, the small blue flower is *Veronica saxatilis*; 5, *Polypodium dryopteris*; 6, *Phlox reptans*.—S. L. 1, *Ornithogalum arabicum*; 2, *Doronicum plantaginifolium*.—L. P. 1, *Stedum caroeum variegatum*; 2, *Poa trivialis variegata*; 3, *Mercurialis perennis*; 4, *Cratogeomys cordata*; 5, *Juniperus sinensis*.—W. J. G. The *Cattleya Mendeli* is a good ordinary form; the C. Mossiae a very distinct and uncommon variety.—G. C. The Fern is *Polystichum angulare proliferum*; the yellow flower, *Celsia cretica*. So far as we can judge by the withered shoots sent, the other is an *Ampelopsis*.—C. A. B. We are

unable to name your plants with certainty in the absence of flowers.—L. V. B. K. *Spiraea confusa*.

PEACH-TREES: Oakfield. The immediate cause of the curling of the leaves is a fungus, *Ascomyces* deformans, and it is usual for such deformed leaves to be infested by mildew. The worst of them should be cut off and forthwith burnt, and then the trees should be well syringed with water in which sulphide of potassium has been dissolved to the amount of ½ oz. to a gallon of water. Failing this, you might apply black sulphur—S. vivium. If the trees do not seem to be in a thrifty condition, and they are not good, transplant them in the autumn into new soil, loam, mortar-rubble, and well-decayed stable manure. The drainage of the border should be carefully inspected and made efficient if found to be faulty. The lime you suggest applying forthwith will be beneficial. Everything should be done to encourage growth during the next two months.

PEAS: Walton. Can you send some specimens of the insects which you suspect have been the cause of the injury to the plants? The stems of some of them appear as if gnawed just below the ground-level, and many of the roots are decayed.

PINE CONES: A. B. B. If the cones are placed in the sun, or on the kitchen range when the fire has gone out an hour or so, the scales will readily open and allow the seeds to be beaten out. Doubtless you have gardening friends who would supply the cones if asked so to do.

ROMAN HYACINTHS, ETC.: P. S. C. We are unable to name any French growers of the plants you name.

SUPPOSED CROSS BETWEEN CYTISUS SCOPARIUS VAR. ANDREANUS AND C. PRAECOX: T. Geeson. The shoot's sent are those of *Caragana arborescens*.

TOMATOES SPOTTED: A. F. *Cladosporium lycopersici*, the so-called "black spot" of the Tomatoes. Burn forthwith every affected fruit, and dress the plants with sulphide of Potassium-wash at the rate of ½ oz. to 1 gallon of water.

TULIPS DISEASED: G. Danco. The Tulips sent are a very bad case of attack by a fungus identical with, or nearly allied to, the Sclerotium-disease, described by Mr. Massee in the *Gardeners' Chronicle*, p. 160, vol. xvi., 1894. The fungus is abundant in leaves and flowers, causing the spotting and death of all parts above ground. Black, hard, shining grains, the sclerotia, are common, especially in rotten flowers, and show that the fungus has run its course, and entered into a resting-stage till next season. Old bulb-sheaths have also been attacked, but the new bulbs seem, as yet, untouched. The "worms" are millipedes, which we do not think have anything to do with causing the disease, although now they are assisting the destruction. The fungus may have been brought with the bulbs, or it has arisen from resting sclerotia accumulated in the beds from former bulbs. The case is a bad one, and has been allowed to go too far, if as, you say, 80 per cent. of the plants are a failure. We should get rid of the whole lot by removing and burning them; and on no account digging them in. The ground should do well enough for summer bedding-plants, if these do not include Lilliums or other plants allied to Tulips. We should, however, prefer to replace the top few inches of soil with clean, fresh loam. This is absolutely necessary if you mean to try Tulips or Hyacinths in the same plots next season; the better plan would be to keep plants of the Tulip kind away from the beds for a year at the least. W. G. Smith.

VANDA: B. S. W. & Son. Thanks for abnormal flower of Vanda, which we will examine carefully.

COMMUNICATIONS RECEIVED.—J. R. J.—J. B.—J. C. T.—A. D. W.—T. E.—R. G. H. H.—G. A.—H. L.—Bassett.—E. H. K. & Son.—Sutton & Sons.—J. Davis.—T. F.—G. P. R.—C. V. Eckhaute.—H. J. S., with thanks (next week).—D. S. M.—G. Doonan (send the Rose to a nurseryman).—W. W. L.—V. B. K.—H. B.—C. R. M., New Orleans.—W. J. J. McG.—A. D. Hall.—Allan Edward.—Coventry.—D. T. F.—M. C.—C. W. D.—C. T. D.—Wild Rose.—E. C.—R. D.—J. W. McH., Hants.

CONTINUED LARGE INCREASE in the CIRCULATION of the "GARDENERS' CHRONICLE."

Important to Advertisers.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper,

MORE THAN DOUBLED,

and that it continues to increase weekly. Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES of GARDENERS and GARDEN-LOVERS at home, that it has a specially large FOREIGN and COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE

Gardeners' Chronicle.

SATURDAY, MAY 28, 1898.

RECENT BOTANICAL DISCOVERIES IN NEW ZEALAND.

A LITTLE more than two years ago I contributed (*Gardeners' Chronicle*, Jan. 11, 1896, p. 43) a summary of recent botanical discoveries in New Zealand and the outlying small islands, and I now propose giving a brief account of what has been done since, together with references to some facts previously overlooked by me. The twenty-ninth volume of the *Transactions of the New Zealand Institute*, and the previous volume, are the principal sources of what follows.

In the first place, I should like to correct a statement made in my article referred to above. I mentioned there that 550 assumed new species of flowering plants had been added to the flora since the appearance of Sir Joseph Hooker's *Handbook*, published thirty years previously, but only one new genus, *Tetrachondra*, an inconspicuous and anomalous little plant referred to the *Boraginaceae*. This is not quite true, because I had forgotten *Siphonidium*, a genus allied to *Euphrasia*, but differing greatly in habit and structural details; only a single species is known. It is a very small trailing plant, having oval leaves a quarter of an inch long, and solitary, axillary erect flowers, and exceedingly slender corollas about 3 inches long. There is little doubt, however, that *Siphonidium* is a congener of Sir Joseph Hooker's section *Anagosperra* of *Euphrasia* (*Hook. Ic. Pl.*, pl. 1283), recently raised to generic rank by Wettstein.

Taking the 28th volume, issued last year, first, we find some interesting records; among them the re-discovery of *Dactylanthus*, a curious endemic genus of the *Balanophoraceae*, and the discovery of *Lepikena bilocularis*, a new species of a genus of *Naiadaceae* confined to Australia and New Zealand. Mr. Thos. Kirk's paper on the displacement and replacement of native plants in New Zealand I summarised in the *Gardeners' Chronicle* of June 13, 1896, p. 731. There is a second and later paper by the same author on introduced plants, which is entitled "The Products of a Ballast-heap." It was the ballast of a ship from Buenos Ayres, and covered an area of about 40 feet by 80. One hundred and four species of plants were collected, twenty of which had not previously been observed in the colony. But the interest lay in the fact that the majority of the new-comers were of South American origin, because previously less than a dozen of the vast number of naturalised plants were natives of that part of the world. Of course, it remains to be seen whether they will permanently establish themselves; but so far as our experience goes, and speaking generally, European weeds are the most vigorous as colonists. The worst of it is, almost all of them are useless

and injurious, and over-run new countries at an alarming pace. But having already enlarged on this subject, I may pass on to the new plants described by Mr. Kirk, Mr. Cheeseman, by the veteran Rev. W. Colenso, and others. *Cordylina Cheesemani* is the most noteworthy among the genera characteristic of the country. Twelve species are added to the seventy, or thereabouts, previously-known native species of *Veronica*, partly from new discoveries, and partly from the fact that several plants originally referred to the genera *Logania* and *Mitrasacme* prove to be *Veronica*.

Mr. Colenso describes between thirty and forty reputed new species, belonging to a great number of different genera; but as he takes an exceedingly narrow view of species, the majority of them are not likely to meet with general acceptance. Many of the New Zealand genera, like *Rubus* and *Hieracium* with us, present such a multitude of forms that to be consistent one must either make a large number of species, with little range of variation, or a small number of species exhibiting a considerable range of variation. The former course renders it impossible for anyone except a specialist to identify "species," and even the specialists often disagree. But this is a digression. I will now pass to the consideration of the botany of the twenty-ninth volume of the *Transactions*.

Foremost in interest, perhaps, is Mr. T. Kirk's paper on the botany of the East Cape district, as it was in this district that Sir Joseph Banks and Dr. Solander, who accompanied Captain Cook on his first voyage, and who were the first naturalists to visit New Zealand, collected. They landed at Poverty Bay in October, 1769, and subsequently visited other localities, and made a collection of the lowland plants to the number of 250 species. As Mr. Kirk relates, about seventy years elapsed before another naturalist visited this part of the Colony. In 1838 the Rev. W. Colenso paid his first visit to East Cape; but what is more remarkable, he is still in the enjoyment of good health, and attended every meeting of the Hawke's Bay Philosophical Institute in 1896, during which year he occupied the presidential-chair.

But to return to the East Cape District. This comprises the country extending from Opotiki, Cape Runaway, 37° 30' S., and the East Cape to the Mahia Peninsula, in 39° 15' S. latitude; thus being bounded on all sides by the sea except the west, where it runs into the vast forest-clad district, known as the Urewera country. The mountains culminate in Hikurangi, a peak 5606 feet high. Large portions are still covered with dense and luxuriant forest, of which *Vitex lucens* is an important constituent in the northern portion of the district. The Kauri (*Dammara australis*), characteristic of the coast forests from Mercury Bay northward is, however, totally absent.

Mr. Kirk's catalogue of flowering plants and Ferns comprises about 500 species; but he anticipates that future explorations will raise the total to 650 or 700, the additions consisting almost exclusively of flowering plants. Strange to say, the number of endemic species does not exceed half-a-dozen.

The chief interest of the district arises, Mr. Kirk points out, from its having a remarkable intermixture of plants characteristic of the extreme north of the colony, associated with others of a peculiarly southern type. For example: *Pisonia* and *Euphrasia*, *Sideroxylon* and *Aciphylla*, *Persoonia* and *Gentiana*, and *Vitex* and *Calceolaria*. It is also estimated

that the number of species attaining their northern or southern limits within its boundaries is, perhaps, larger than in any other district of similar area in the North Island.

Mr. Kirk gives a list of sixteen northern species which attain their extreme southern limit, and fifty-five southern species which attain their extreme northern limit, in the East Cape district. In all these statistics only flowering-plants and Ferns are included. An analysis of the general list would obviously have very little interest for persons not fully conversant with the flora of New Zealand; but it may be mentioned that all the species collected by Banks and Solander are indicated, and there are interesting and important notes to some of the plants. *Clianthus puniceus*, which has now become exceedingly rare, was originally discovered by Banks and Solander at Tolago and Tigadu; and Kirk states that Bishop Williams informed him that it is still found at Anaaura, and on one or two small islands in the vicinity; also inland. This locality is not far from Tolago. Mr. Kirk does not question the *Clianthus* being truly wild in this part of New Zealand; and Sir Joseph Hooker, in his *Handbook*, does not say that it is not wild, though it is mostly found near native dwellings; yet I have somewhere seen it stated that it cannot be regarded as truly wild in any of the localities recorded.

It is a remarkable fact that the original and far more gorgeous species of *Clianthus* was one of the few plants brought by Cook's predecessor, Dampier, after whom it was named.

Among Mr. Kirk's other contributions is one on that small group of *Leguminosae* of which *Carmichaelia* is the type; a group with one exception in Lord Howe's Island, restricted to New Zealand, where, I may add, there are not half-a-dozen other native *Leguminosae*. Ten species of this group are described in Hooker's *Handbook* (1864) belonging to two genera, and these numbers are now increased to twenty-six and four respectively. The genera are, *Carmichaelia*, *Notospartium*, *Corallospartium*, and *Huttonella*; the two latter partly founded on species formerly placed in the first, and the last described in the paper under review.* *W. Botting Hemsley.*

NEW OR NOTEWORTHY PLANTS.

LILIUM RUBELLUM, Baker.†

THIS fine Lily is quite new to cultivation, and to European botanists, although it is well figured in the *Hozo Zuffu*, vol. 51, tab. 6. It is nearest to *L. japonicum* (Krameri), from which it differs by its broad speciosum-like leaves and smaller pink flowers, with obtuse segments (see fig. 128, p. 335). A stock which was imported from Japan by Messrs. Bunting & Son, of Colchester, has, we understand, passed into the hands of Messrs. R. Wallace & Co., who exhibit it at the great Temple Show. A drawing has been made for the *Botanical Magazine* from flowering specimens supplied by Messrs. Bunting.

Bulb globose, with lanceolate scales; stem slender,

* Since the foregoing was written, the death of Mr. Thos. Kirk has occurred (see *Gardeners' Chronicle*, March 18, p. 175), and I learn from Mr. Cheeseman that it is feared that his *Student's Flora of New Zealand* is left in a far from complete state. W. B. H.

† *Lilium (Edlirion) rubellum*, Baker. — Bulbo globoso squamis laeviculis; caulo gracili striato; foliis circiter 20 alternis lanceolatis obscure; petiolatis viridibus glabris 5-7-nerviis; floribus 1-2 erecto palatibus; perianthio infundibuliformi pallide rubello, segmentis oblanccolatis, oblongis obtusis extus basi viridi tinctis, interioribus latioribus; staminibus perianthio duplo brevioribus; stylo arcuato staminibus longiori.

terete, green, bearing about twenty alternate obscurely-petioled bright-green lanceolate leaves, the central ones the largest, about 2 inches by $\frac{3}{4}$ -inch broad, conspicuously 5—7-nerved; flowers 1—2, erectopatent; perianth openly funnel-shaped, pink, unspotted, nearly 3 inches long, 3 inches in diameter when fully expanded; segments oblanceolate-oblong, obtuse, the inner an inch broad, the outer narrower, slightly tinged with green towards the base; stamens less than half as long as the perianth; anthers small, linear, bright yellow; style arcuate, overtopping the stamens. *J. G. Baker.*

ALPINE GARDEN.

PRIMULA DENTICULATA AND ITS VARIETIES.

NUMBERS of this pretty Himalayan species and its varieties are now in flower at Woking, and although the species cannot be considered a new introduction, it and they are not so plentiful in gardens as their easy culture and abundant blooming habit at this season of the year warrant. The flowers, of a bright lilac colour, are small, and appear in dense heads borne on the top of stout stems 8 inches in height. The leaves are in shape oblong lanceolate, with a white farina beneath. The species and its varieties do well if planted out in loamy soil in a moist situation; and when thus treated are not injured by any amount of bright sunshine. The plants are increased by division of the crowns during the autumn and by seeds, which should be sown as soon as ripe. One of the best varieties is *P. denticulata alba*, an exact counterpart of the type excepting in colour. It is a very valuable addition to spring flowers, white flowers being scarce at that season. This variety was introduced in 1886.

P. d. var. Cashmeriana is a form of the type which comes from Cashmere, as was introduced in 1879. The flowers are of a light purple, but with a clear yellow eye, and are more densely arranged than in the type. The leaves are of an oblong shape, and in colour pale green, and they have a bright yellow mealiness on the lower side. This variety is described in the *Floral Magazine*, new series, p. 360; and in the *Revue Horticole* for 1880, p. 330.

P. d. var. pulcherrima is an improved form of the type, with long leathery leaves, and grows nearly 1 foot in height. The globular flower-heads are much larger, and its flowers are much deeper in colour, and the meal on the under-surface of the leaf is not so abundant as in the other forms of the species.

P. d. var. purpurea is the darkest form, and it was introduced from the Himalayas in 1873. The flowers, densely clustered, are borne on stems about 8 inches in height, and are of a deep purple colour. All of these forms are as floriferous as the type, and quite hardy, and equally good for growing in pots for greenhouse decorations. *E. S., Woking.*

Primula verticillata.—This, the well-known Abyssinian Primrose, is a glorious subject for flowering at this season of the year. A highly valuable greenhouse species, it deserves all the attention which can be given it, for in addition to its very handsomely mealied foliage, it flowers with great freedom, putting forth scapes, each of which bears two or three whorls of bright yellow blossoms, which possess the perfume of the Cowslip. It is a plant that finds a ready sale when in bloom, and good use was made of it at the recent spring show at Brighton, as it held a foremost place in groups. As it seeds fairly plentifully, and the grains germinate freely, it is readily propagated in this way, though seedlings show but little variation. A more desirable species to cultivate can scarcely be named; one of its leading recommendations is that it flowers so early in spring. *R. D.*

ASH ANALYSIS AND THE MANURING OF PLANTS.

SINCE Liebig first proposed to manure each crop by adding to the soil various mineral matters removed by a normal crop, the theory that the most suitable

manure for a particular plant can be learnt from an analysis of the ash of the plant, has never been entirely dropped, and though the Rethamsted experiments and the experience of more than a generation of farmers working with artificial manures have amply disproved it for our standard farm crops, it still finds a place in garden literature.

Year by year analyses of plants are accumulated, separate determinations are even made for the root, the leaves, and the fruit, and this or that combination of manures is recommended as supplying exactly what the plant removes from the soil; yet in the only cases where exact and long-continued experiments have been made, Wheat, Oats, Barley, Swedes, Mangels, Potatos, Clovers, and Grasses, we find that the manure giving the best returns in the crop is very far from that indicated by an analysis of the plant. In many cases the constituent most required by the plant is not the substance chiefly removed from the soil, but the one of which the least proportion is taken; the plant from its habit of growth finds a difficulty in obtaining the substance in question from ordinary soil, and is always deficient in it, given a free supply in the shape of manure the plant is proportionally stimulated. For example, Wheat is specially responsive to dressings of nitrogenous manure, though it contains a comparatively small proportion of nitrogen; but feeding as Wheat does chiefly during the cooler part of the year, and being a deep-rooting plant, it is not well fitted to obtain the nitrates which develop in the surface-soil, and hence requires a free supply of nitrogen in the manure.

To obtain a little more evidence on this question, two students of the South-Eastern Agricultural College at Wye, D. Turner and H. F. Bengier, undertook the examination of certain plants as set out below. In the first place the composition of any specific plant is more than a little variable, according to the soil and other conditions under which each individual is grown, the variations between individuals being often as great as those between species—in any case, far too great to permit one to draw deductions from an average of the analyses. It is easier to draw conclusions as to the requirements of soils by analyses of the plants that grow in them, than to decide upon the needs of the plant generally from the same data.

To arrive at some idea of the variations that occur in the composition of a plant growing naturally, the Dandelion was selected and examined by D. Turner; specimens were collected from the various soils to be met with near Wye, two or three being taken from each place; the whole plants in late autumn were dug up, washed till free from soil, dried, incinerated, and the proportions of lime and phosphoric acid in the ash determined. For the purposes of our enquiry it was not necessary to perform a complete analysis, one or two elements being enough to show the essential variation or fixity of the whole.

The results set out below show the percentages of lime (CaO), and the phosphoric acid (P₂O₅) in the ash, these percentages being further recalculated in the last two columns on the basis of making the average percentage = 100.

Dandelions, D. Turner.

NATURE OF SOIL.	Lime in Ash.	Phosphoric Acid in Ash.	Lime.	Phosphoric Acid.
Sandy loam ...	12.8	2.5	46	38
Brick-earth by river-side ...	14.6	10.0	52	151
Reddish sandy loam ..	24.9	5.8	89	88
Rich loam ...	27.4	8.9	98	135
Chalky railway bank	39.8	7.3	142	111
Broken chalk by roadside ...	48.8	4.9	174	74
Average	28.0	6.6	100	100

The variations are plainly very great, nor is there any connection direct or inverse, between the two constituents; again, the phosphoric acid determination nearest to the mean value is as much as 11 per cent. less than the average, so little trust could be placed in a manure based upon the average values.

The second set of determinations were designed to see if any close connection existed between the composition of the ash and of the soil in which the plant was growing. Swedes were chosen for trial, thus giving a plant grown under similar conditions on widely different soils. In each case two Swedes were taken with a sample of the soil round them; portions representative of the whole root were cut from each, dried, incinerated, and the proportion of lime in the ash determined; at the same time the proportion of lime in the soil was estimated.

LOCALITY.	Soil.	Series. H. F. Bengier.				
		Ash to dry matter.	Lime to dry matter.	Lime to ash.	Lime in soil.	Lime in ash to average.
Weld clay ...	Chauligh, Surrey	6.69	.42	6.34	.08	47
Sandy loam ...	Uddington, Notts.	7.51	.72	9.63	.41	72
Loam on millstone-grit	Coele Park, Northumber.	4.83	.45	10.51	.28	78
Light sand ...	March	6.42	.73	11.48	1.43	86
Sandy (recently limed)	Westenhanger, Kent	5.29	.65	12.41	.28	83
Clay on chalk ...	Potham, Kent	5.93	.75	12.55	.39	94
Loam on millstone-grit	Coele Park, Northumber.	4.21	.57	13.59	.45	101
Loam on chalk ...	Wye	5.6	.83	14.75	7.32	110
Gault clay ..	Brook, Kent	5.49	.805	14.66	16.71	110
Gault clay..	Brook, Kent	3.53	.494	28.12	14.11	211
Average				13.4		100

In this case, the variations in the composition of the ash are not so marked as before, but a comparison of the proportions of lime in the ash and in the corresponding soils, shows that if anything the ash tells more about the needs of the soil than the requirements of Swedes is general.

But we have only to take a plant like Swedes, whose manurial requirements have been carefully investigated, to prove the fallacy of the ash theory; taking the Rethamsted returns as a basis for calculation, we find that an acre of Swedes will withdraw from the soil about 98 lb. of nitrogen, 33 lb. of phosphoric acid, and 149 lb. of potash. We could supply these substances by a manure composed of 640 lb. of nitrate of soda, 255 lb. of superphosphate, 1240 lb. of kainit.

It is, however, quite certain that the manure for Swedes should be mainly phosphatic, the crop is very often grown with 5 cwt. of superphosphate and 1 cwt. nitrate of soda, i.e., about 70 lb. of phosphoric acid and 18 lb. of nitrogen; or again, with 12 tons of farmyard manure and 4 cwt. or so of superphosphate, which would contain about 130 lb. of nitrogen, 130 lb. of phosphoric acid, and 150 lb. of potash; excess of nitrogen results in a very indifferent Swede, and from most of our soils the crop can obtain its potash without artificial aid.

Garden plants are generally grown in soil already well stocked in the primary constituents of plant-food, so that it becomes more than ever necessary to study the idiosyncrasies of the development of each species by actual experiment, instead of trusting to analyses which lead to fallacious conclusions in the only cases where we possess positive evidence, *A. D. Hall, Wye.*

COLONIAL NOTES.

COFFEE-GROWING IN QUEENSLAND.

I AM sometimes asked, "Will Coffee pay in Queensland?" By this, of course, is meant not whether Coffee is profitable as an article of trade, but whether it, as a field-crop, will pay the cultivator. I would advise all those who are in doubt about the matter to visit the State Nursery, and see for themselves the crops on the trees here.

Mr. Dunsy, Manager of the Mackay Coffee Co.'s Estate, says he has not seen a better crop in Ceylon. Most people say Coffee must be grown in a scientific manner, and for some this word science seems to have a fearful significance, but at the nursery they make a crop grown on non-scientific principles [?]. At the outset I planted on scientific lines. Starting at the surface of the ground, it was considered neces-

sequence of this is that the roots cut off in digging receive no benefit, and those at a distance from the holes would have to travel if they wanted to share in the good things supplied in the shape of manure.

My method was to spread the manure over the surface of the ground within a radius of some 3 feet from the stem, and then lightly prick it in with a digging-fork. The result of this was, that as soon as the rain fell, the plants showed dark green foliage in abundance.

It is just possible that when the Coffee-expert visits this nursery he may order all these bushes to be dug up, and I would therefore advise anyone who has been lamenting his ignorance of Coffee-growing, to come here, and after what he has seen, he will, perhaps, have an easier mind.

The other day I had a visit from an intending Coffee-grower, who, no doubt, was impressed with fears for his success, after reading a mass of books

congenial to the growth of the plant, and where the land is exposed to the fury of the gales that sweep over the place, it shows there is not so much mystery about the matter as is supposed. For land such as that at this nursery I believe manuring to be an absolute necessity.

I notice that some trees bear better than others. Some trees are absolutely barren, although I believe I have none here. In Ceylon these trees are called "males," but such nomenclature does not speak well for the botanical knowledge of those who so designate them. The Coffee-tree is not dioecious, it is a hermaphrodite. Perhaps the expression merely means a barren tree; but whatever they may be it would be better to dig them out and plant others in their places. To avoid the risk of raising non-bearing plants, as far as possible seeds should be selected, when it can be done, from the bushes bearing the greatest crop of berries.

The trees here having strong stems and being well-rooted, the branches, as soon as the present crop is gathered, will be thinned out, thus complying with the common sense and scientific instructions as to letting in light and air.

There are many people who, even if they have the necessary capital and knowledge, are physically unfit for the laborious work of Cane-growing, but they would be perfectly capable of growing Coffee. While the price remains at its present figure, Coffee-growing will pay better than Cane-growing at the present price of sugar; and where there is a family of children, the pickers are ready at hand. I feel sure that a good future is in store for the Coffee-growing industry, and it is just those farmers who have 30, 50, or 100 acres of Cane who can go in for Coffee-growing successfully, as they have money coming in to tide them over the three years during which they have to wait for a crop. *D. Buchanan.*



FIG. 118.—*DAVALLIA FIJIENSIS EFFUSA*.
(As exhibited by Mr. May at the Temple Show.)

sary to maintain a clear height of stem of 6 or 8 inches without any branches. The single stem was to be continued, and no suckers were to be allowed to grow.

Under this system I soon found that all the plants would require staking. This was all very well for a few months, but when the branches began to grow, I saw that the stakes were not strong enough, and they had therefore to be replaced; then, when the usual wet season, with its gales of wind swept over the place, neither stakes nor stems could resist their violence, and the greater part of the plants were laid flat. I very soon came to the conclusion that the local conditions rendered this method useless. No more pruning, and no more destruction of suckers took place, the single stem soon thickened, the branches began to rest on the ground and formed the necessary support for the trees. Some books recommend manuring; and the scientific method recommended consists of digging a hole or two round the roots, in which the manure is placed. Now the con-

on the subject. When he had seen several of the bushes, he expressed the opinion that growing Coffee by hook was not the way to success. There is, however, a danger, of going to extremes on the other side; but it is plain that hard-and-fast rules must give way to circumstances.

Science has done much in the past, and will do much in the future, for agriculture. All I want to impress upon would-be Coffee-growers is, not to let science be the bugbear to frighten you out of the field. If you want to grow Coffee, and you possess average common sense, put that common sense to work. If you have not got a farm, then look out for one—a piece of good land, well sheltered from the wind if possible. Having selected your farm, "look over the hedge" and watch the man who is succeeding in the industry. Take his advice, and follow it, as far as your own particular environments will allow. You are then not likely to fail. If a crop of Coffee-berries can be grown such as may be seen here, where the soil is by no means specially

THE HERBACEOUS BORDER.

HEUCHERA SANGUINEA.

SEVERAL *Heucheras*, with unauthorised names, or at any rate with names not to be found in *Index Kewensis*, are offered this spring in nursery catalogues. Two or three which I bought are already in flower, and seem to be hybrids of *H. sanguinea*. This plant soon showed its readiness to produce hybrids, a casual cross between it and *H. cylindrica* having appeared on one of my borders four or five years ago; its character at once proclaimed its parentage. In hardiness and freedom of flowering it surpasses the seed parent, *H. sanguinea*. A bed of cuttings from it was crowded with flower-stems all through September and October last year, and many buds were killed without flowering. The bed in question is an equilateral triangle, with sides of 4 feet, and contains, perhaps, fifteen plants, each now bearing about thirty flowering-stems, and they will probably continue to be produced till autumn. The original seedling, which has never been transplanted, is about 18 inches square, and has at least 200 flowering-stalks now about to flower, the colour being pink, not without a suspicion of the green tint of its pollen parent. A year or two after this seedling appeared, two others came in different parts of the garden, bearing evidence of being *H. sanguinea* × *H. hispida*; the flowers of these are of a paler red than *H. sanguinea*, the plume larger and more diffuse, and the leaves marked with brown, but less conspicuously than in *H. hispida*. The cross of *H. cylindrica* bears fertile seed, and I have a most curious panful of mongrels now in flower from it. They vary in colour and form, and there are hardly two alike. Whether any will deserve the distinction of being perpetuated I cannot yet say. I think I saved seed, apparently fertile, from the other hybrid also. As for the original *H. sanguinea*, which has been considerably improved by selection since its first appearance here, it flowers abundantly enough here in May and June in warm and sheltered positions, but being Mexican it can hardly be expected to thrive when fully exposed to such weather as we had in March; and in fact where so exposed it is withered past recovery.

It is, however, one of the best importations of recent years, and if taken in hand by skilful hybridisers and made more hardy, and its flowering more lasting, might, I think, become useful for permanent masses of colour to flower all summer. *C. Wolley Dod, Edge Hill, Malpas, May 15.*

THE WORKING VALUE OF FUELS.

IN some experiments carried on at the New York State Veterinary College, it was found that the heat lost by ventilation was 39 per cent. of the whole, and my attention has been called to the fact that these figures, which may be taken as correct, differ seriously from those given in my book on the *Commercial Uses of Coal Gas*, where the amount lost in Messrs. Walker's bottling-stores is given as varying from 22½ to 25 per cent. The explanation is simple, the minimum ventilation required in living rooms is 500 cubic feet of air per hour for each adult; in bottling-stores only a fraction of this is required—in fact, no provision whatever is made for ventilation, and all which takes place occurs from leakage, and the constant opening of doors for the passage of trucks and barrels. The figures given by me are clearly stated as being observed results in practice, in bottling-stores only. I had no opportunity before the book was published of making exact experiments in living rooms, these being very difficult, if not impossible, under ordinary conditions, in any house, the speed of the air currents in the flues varying almost from minute to minute. Recent experiments in rooms where the ventilation is controlled and can be measured, have established a rule, which may be safely relied on for every practical purpose. The accepted standard is the British thermal unit, i.e., the amount of heat necessary to raise the temperature of 1 lb. of water 1° Fahr., and one unit is required per hour for each degree rise of temperature over the outside for each square foot of glass, or for every 4 square feet of exposed wall, and two-thirds more for the loss of heat by ventilation in ordinary living rooms. The loss of heat in living rooms is an unknown quantity, as it varies in every room, and in the same room from hour to hour; but taking the theoretical value of coal-gas at 660 British thermal units per cubic foot, that of coal 13,000 units per lb., and of coke 10,000 units per lb., it becomes easy to calculate the effective value, and the loss of heat in different systems. A fuelless gas stove may be taken as the highest type of efficiency, and using this, 1 cubic foot of gas per hour will be required for every 660 square feet of glass, or every 2680 square feet of exposed wall for every 1° rise of temperature from the outside, and in addition to this, two-thirds of a cubic foot for loss by ventilation. Taking a room 22 feet square, and 10 feet high, with all walls exposed, 2 cubic feet of gas per hour will maintain a rise of 3° over the outside, allowing for the average window surface. The exact figures for warm-air stoves with flues, and for open fires, are not available, and perhaps not possible, but for average practice, it may be taken that nearly one half the total heat is lost in a warm-air stove with a flue, and two-thirds with an open fire. This can hardly be considered as all loss, as the ventilation necessary for comfort and health cannot be always obtained without some assistance, and the so called loss may be partly taken as useful work done. The whole subject is beset with variations and difficulties, and any standard can be proved to be seriously wrong in individual cases, but the figures given may be taken for average work. It must be clearly understood that the figures given are for maintaining the heat, not for raising the temperature of any room quickly, for which a much larger fuel consumption is required.

HEATING PLANT-HOUSES.

These figures work out in practice in greenhouse heating, where steady temperatures are required night and day, and the loss from any system of boilers or stoves can be readily calculated—a matter of interest to nurserymen whose fuel-consumption is a question of vital importance. The loss in most

forms of boilers is enormous, and the subject needs careful consideration. For this purpose, the calculation is exceedingly simple, on the basis of 10,000 units per pound of coke: 1 lb. of coke burnt per hour will give a rise of 10° for every 1000 square feet of glass, or 4000 square feet of exposed wall, not allowing for loss by ventilation. For this, one-half more fuel must be allowed; this gives us the maximum possible duty, and a comparison with the fuel burnt gives the waste. Where the fuel-heat is not utilised there is no doubt that at least 50 to 60 per cent. of the fuel is completely wasted in most of the systems at present in use, and the value of the fuel is not considered as it should be. In my own case, with a Chatsworth boiler, burning gas-coke, and heating a range of houses 45 × 30 feet, one half of which is kept at a tropical temperature, the fuel-heat not being used, the calculated consumption is 8 lb. per hour by theory, allowing one-eighth loss for wind, as the houses are on high ground, and rather exposed (this wind allowance will vary in different districts). The actual winter average is 11½ lb. per hour, showing a waste of 31½ per cent., nearly one-third of the fuel, this being with a first-class boiler, clean, well set, carefully fired, and of the correct size for its work. It is doubtful if better results could be obtained in practice under any ordinary conditions.

The following rule may be taken as a guide for coke-fired greenhouse boilers:—

For every 1000 square feet of glass, and for every 4000 square feet of exposed wall, for each 10° rise of temperature over the outside:—Loss through glass and walls, 16 oz. per hour; loss by ventilation, 8 oz. do.; loss by wind (average), 3 oz. do.; loss by boiler and flue, 13 oz. do.: total, 2½ lb. Three-fourths of the fuel-loss can be recovered by taking these under the beds in the houses.

Any fuel consumption over this may be taken as waste, which can be prevented. *Thomas Fletcher, F.C.S.*

THE ROSARY.

THE ROSE GARDEN IN MAY.

THIS ought to be a busy month with Rose-growers, and very much of the future success of the Rose-garden depends upon the care and attention bestowed upon it now. There are of course Rose-gardens and Rose gardens: there is the Rose-garden of the exhibitor in which the chief object is to obtain large and well-developed blooms for the exhibition-table, in this class everything depends upon the certainty of obtaining fine blooms; there is the Rose-garden of the suburban amateur, whose ideas of beauty mainly consist of rows of standards with mop-like heads. There is the Rose garden of a man whose ideas are mainly æsthetic, who has ample space, and a good supply of the needful at his disposal; he talks about beds of Mrs. John Laing, General Jacqueminot, or Catherine Mermet; he is great upon hedges of Crimson Rambler, and an arcade of Roses trained over a path so as to form arches. There is the Rose-garden of what I may term the botanical Rose-grower, who despises the fat Roses, as he calls them, of the exhibitor, and whose special love is given to the single Rose of the various countries; he loves an Austrian yellow or copper, and to him a Bardon Job or Carmine Pillar is all that can be desired. Of course to many of these persons who allow their Roses to gang by themselves, the month of May brings no peculiar obligations, and it will be useless and tiresome to give a multiplicity of directions, and I therefore rather confine myself to those who, like myself, enjoy the beauties of a good, well-developed Rose, although I never place it on the exhibition-table.

Enemies of the Rose.—Roses, like all beauties, have their host of admirers; but they also have their enemies, and it is of the latter we have at this time to think the most. There is, first of all, that little pest which Shakespeare has with his usual keenness with regard to nature said of Viola in *Twelfth Night*, "she never told her love, but let concealment like a worm in the bud feed on her damask cheek." As the shoots begin to grow and the flower-buds to develop,

this pernicious beast makes its appearance. It mostly lays hold of the leaf, which the little maggot attaches to one of the buds, and quietly gnaws away at it; it is thus somewhat shrouded from view, and the casual observer might think there was nothing the matter. But the rosarian knows better, and is therefore ever on the watch, for even if it gets as far as this attaching the leaf to the bud, the beauty of the bloom is destroyed. Fortunately, before it does this, it shows itself in the leaf, and whenever one sees the leaves at the top of the shoot looking rather confused, he may be sure the enemy is there; to get rid of him is, of course, the primary object, and this can only be done by the unpleasant process of hand-picking and destroying them, and therefore it is well to employ some little fingers to go over the shoots every day for some time. I prefer the little fingers should be those of a girl, as boys are rougher and more likely not only to destroy the maggot but to injure the shoot; no insecticide seems to be of any use, and I have never found that the maggot is any the worse for its application. Mildew is another pest of a different character; it is not so hurtful to the tree, but very disfiguring, and as all rosarians know, there are some varieties which are more seriously affected by it than others. Jean Libaut and Her Majesty are amongst these; whilst there are others, like Mrs. Paul and Mrs. W. J. Grant, which are nearly mildew-proof, and it is somewhat curious that Tea-Roses seem to be so little affected by it. I believe it is generally looked upon as being favored by alternations in temperature, and one would have thought that the more delicate Tea-Rose would have been more affected by it; but it is not so. Syringing with a solution of soft-soap or dusting with sulphur may be applied, but these are all disfiguring, and the rosarian would be glad if he were spared the necessity of using them. Aphis or green-fly is one of the most persistent or troublesome enemies of the Rose, and is in some seasons very abundant; some localities seem to suffer more from it than others, and it is curious to notice that when rosarians meet together how varied are their experiences as to the pest. Sometimes the young shoots are literally covered with them, and there is great difficulty in getting rid of them. Where the collection is small, a Rose-grower will not object to employ some one to pass the finger and thumb up each shoot, and afterwards syringing the plants with clear water. Where it is large this is impossible, and syringing with a solution of Gishurst compound, and afterwards with clear water, will get rid of them. Perhaps in no point is the difference between an exhibitor and a non-exhibitor so manifest at this season as in the question of mulching; the former will now probably cover his beds with a good coating of farm-yard manure, which does not add to the appearance of the Rose-garden nor to the pleasure of those who go amongst the Roses, but which the exhibitor considers necessary for the full development of his flowers. Not being an exhibitor, my plan is at this season to gently fork over the beds, and leave them all neat and trim; it certainly adds to one's pleasure in going amongst them. But if I do not mulch, I do apply liquid-manure; this should be done before the buds begin to develop, and I generally do it twice or three times, allowing the space of several days between the applications. It should be applied in a clear state, if possible, and some soot should be placed in the vessel that contains it.

Seasonable Hints.—As the shoots begin to develop it will be necessary where they are strong to prevent them from being blown about, and so a neat stake ought to be placed, to which they should be loosely tied; more especially is this needed with newly-budded Roses, for they are very apt to be nipped off with the high wind, and sometimes even the shoots are blown out at the point of junction.

In these observations I have made reference merely, as I have said, to the two great classes which form the bulk of the Roses in our gardens, the Hybrid Perpetuals and Teas. Of course, climbing Roses and Roses on walls have to be treated differently, no one would dream for instance of treating Lord Penzance's

Hybrid Sweetbriars, or the rampant-growing Polyanthus, such as Crimson Rambler, in the same way. As the young shoots are developed they must be tied in, as on these will depend the bloom for the next season; and when the flowering season is over the old flowering-wood of this year will have to be cut away, so as to allow space for these young shoots to grow at will, and get the full benefit of air and sunshine during the summer months. I have heard people complain of Crimson Rambler not flowering, but I believe it is attributable to this cause, that the shoots have been pruned and the old shoots left in—a fatal mistake. Again, all rampant-growing Noisettes, or those which are called Dijon Teas, should be treated in the same way; they require but little cutting back, and a great deal of cutting out. Such kinds as Rêve d'Or and Bouquet d'Or are especially valuable, the former may be called Tea Noisette, and the latter Dijon Tea; they are both nearly evergreen, and are clothed from the base to the extreme end of the shoots with bright green foliage; while Gloire de Dijon, Madame Persad, and others, have long bare shoots, which do not enhance their beauty. Some of Lord Penzance's Elms make capital plants when budded on tall standards, and allowed to droop, but it is best to leave these alone, too, so as to let them grow in a more natural state. Those of us who have walls are now beginning to rejoice in the first fruits of the Rose season. I have already had blooms of Climbing Devonians and Longworth Rambler, and I see that the buds of Fortune's Yellow are rapidly advancing; but as we are getting our usual "cold wave" in the third week in May, it is possible that for a little while there will not be much progress, and we shall have patiently to wait for the rosy month of June. *Wild Rose.*

KEW.

THE ROCKERY.—At the present time, this, one of the prettiest parts of the gardens, and the one having a permanent interest for all those who love alpine and early flowers in beds or borders, or in their proper place—the rockery, is well worth a visit. Varieties of Aubrietia deltoidea are prominent objects by reason of their forming distinct masses of colour; and we noticed A. d. Andersoni, purple; A. d. violacea, reddish-purple; A. d. W. Ingram, bright lilac; A. d. Hendersoni, deep purplish-blue—one of the best; and A. d. Dr. Mulus, bright blue—very pretty; Heuchera pubescens, and H. humulosa, species having a darkly-zoned leaf; Epimedium rubrum, with green, brown-edged leaves, are useful as affording pretty leaf-contrasts at this season, as is also Rodgersia podophylla, the colour of whose palmate leaves is of a greenish-bronze; and the height of the plant about 2 feet. Meconopsis Wallichii, planted out in a recess two years ago, has also foliage of a rare colour, and the plants are doing well in the peat-bed along with hardy Cyripediums and various Primulæ. Whilst writing of these hardy foliage-plants, mention should be made of Saxifraga sancta, a plant that makes pleasing green cushions; of Thymus Serpyllum and T. s. lanatum, both capital dwarf, creeping species for covering bare rocks, provided their roots have access to porous soil of a foot in depth; of Acaena micropphylla, a dwarf creeper from New Zealand, of rapid growth, the minute leaves forming a brownish-green mass. The flowering plants consisted of Trillium grandiflorum, Veronica teurium, with an abundant show of flower-spikes; Gladiolus anatolicus, 1½ foot high, with reddish-purple flowers; Iberis sempervirens Garreianus, forming great pendent masses of flowers; Rhododendron indicum an ænum, with reddish-purple flowers; Armeria cæspitosa, forming cushion pink flowers and rosettes of green leaves; Anthyllis montana, a spreading, dwarf-growing species; Nocca alpina, a plant of very low growth, covered with white flowers; Pentstemon confertus, Geum montanum, a pretty yellow-flowered plant, 6 inches in height; the scarlet Euphorbia myrsinites, of the same height; Phlox anææ, P. divaricata, P. reptans, and others; Chrysanthemum caucasicum, a plant 9 inches high, with white flowers, having a yellow disc; Tulipa australis, a yellow-flowered

species; Linum arboreum, with yellow flowers freely produced, the total height of the plant being 1½ foot; Dianthus plumarius, "feather Pink," and D. cæsius, giving great promise of bloom; and Potentilla splendens, a dwarf plant, with white flowers.

The aspects of the rockery are constantly changing, so great is the number of the plants grown thereon, and visitors who may chance to find any of the plants named have ceased to flower, are certain of meeting with others equally beautiful.

"LA MAISON RUSTIQUE."

(Continued from p. 276.)

THE chapters devoted to the "Garden of Pleasure, or Flower-garden," are very interesting. Unfortunately, this part of the work is so badly translated, that the English reader is often left with an impression quite different from that which the author wished to convey. The opening paragraph is almost eloquent, and reminds one of the charming and well-known chapter of William Lawson "On Ornaments":—"To hear the ravishing music of an infinite number of pretty little birds, which continually day and night do chatter and chant their proper and natural branch-songs upon the beiges and trees of the garden, and to smell so sweet a nosegai (bosquet = scent) so near at hand; seeing that this, so fragrant a smell, cannot but refresh the Lord of the farm exceedingly when going out of his bed-chamber in the morning after the sunne rise, and whilst as yet the cleere and pearly-like dew doth perch upon the grasse, he giveth himself to heare the melodious musicks of the bees, which, busying themselves in gathering of the same, do also fill the air with a most acceptable, sweet and pleasant harmonic."

Like the kitchen garden this is also to be "compassed in with arbours," which in this case were "made of Jessamie, Rosemarie, Boxe, Juniper, Cypress-tree, Savin, Cedars, Rose-trees, and other dainties," trained over poles of Willow and Juniper. The alleys were to be of beaten sand, of marble, or of slate-dust, and the walks to be paved with stones, tiles, or with "faire stones such as staires are made of."

This garden (parterre) was divided by a 6-foot walk into two equal parts, "The one to contain the herbes and flowers to make nosegais and garlands of ('bosquets, chapeaux et couronnes'), and was called the "Nosegai Garden." The other division to contain all sweet-smelling herbes used for garlands, &c., but of which the whole herb and not the flowers only were used." The former were planted in beds and borders like those in the kitchen garden. Of the latter some were planted in the same manner, some were "set upon seats," some in mazes, and others in compartments formed of interlaced beds. The latter are the old English knots, and will be referred to further on.

The following are some of the flowering plants:—March Violets, or the common Viola odorata, of which the single and double were grown. In order that the scent may be preserved, it is noted that the flowers must be gathered before sunrise, and when it "raineth not." "White, yellow, and red Gilloflowers doe Crave, the like ordering that March Violets doth." "The white is Matthiola incana, the yellow Cheiranthus Cheiri, and the red I have not yet determined. In the French edition these are respectively "Giroflées blanches, jaunes et rouges." Deisies are mentioned, then the purple velvet flower (Passe velours), "called in Latin, Amaranthus." This is the old flower, Gentle, or Celosia. The Amaranthus of "Lycidas" is A. tricolor. The least frost caused its richly-marked leaves to fall. Hence the aptness of Milton's "Bid Amaranthus all his beauty shed." Love's-bleeding may be Spencer's

"Sad Amaranthus, in whose purple gora
Meseemes I see Aminta's wretched fate."

Each of these have been designated the flower Gentle, or Passe velours.

Then we come to Gilliflowers—Eillets of all kinds, of which there are five species in Latin called "Vettonica altilis on Ocellus Caryophyllus." The first is an old name for the cultivated or double (Atilis) Carnation, but our author has somehow got confused concerning the number of species. He says the largest and finest sorts were cultivated in Provence, thence called "Eillets de Provence." Others less carefully treated were called "Eillets des Rosettes," which Surdeet transmutes into "Purple Gilloflowers." Both designations represent sorts with double flowers of varying colours.

Following these we have Indian Gilliflowers (L'Eillet d'Inde ou de Turquie, appelé des Latines Petilium Flos on Ocellus Indicus et des Italiens Belveder). The identity of this flower is fully established by Dodoens. It forms another curious instance of one flower usurping the name of another, Petilium Flos being that of an unknown plant described by Pliny which had flowers very like the French Marigold, only the latter had reddish-yellow flowers, and the blooms of the former were coloured like the Sweet Briar. La Maison Rustique describes the French Marigold. Belvidere was quite another plant—one of the Campanulas, and later Chenopodium Scoparia. Then we have "Wild Gilloflowers, as well white as red," which are respectively Lychnis vespertina and L. dioica, in French "Eillets sauvage;" double and single forms of both were grown. Of "Lillies"= Lys, "tant blanc que orange," were the only two kinds known; they are, of course, Lilium candidum and L. umbellatum or bulbiferum. They flowered in the month of June.

Methods of changing the colours of the flowers and of having them in bloom at any season are stated, but like much that is said in addition to that, these methods are of no value. "Small Pannces" are Pensée menu, or autumn Violets, or Viola tricolor. Other flowers include Daffodils, Anemones, Hyacinths, Pæony, male and female (Pæonia officinalis), "Hollecks" for Guimauve, Orpis (Sedum Telephium), Palma Christ (Ricinus), and many more.

A few species of Roses are named, but they call for no particular mention, save that a "dammaske of the colour of scarlet, which we call Provence Roses," should read "Damask Roses, and 'escarlantes,' which we call Provence."

"Of sweet-smelling Herbes" there is a chapter. These were grown for garlands for the head, and were mostly well known aromatic herbs. They are treated somewhat in this way:—"Basil, if sown in a dry spot will become either wild tyme or cresses." "It must be watered at noontide, and if sown with curses and injuries offered to it," the plant will thrive better. Cumin, like Basil, "must be curst and railed upon." "Bishopsweed" appears in this chapter. This, however, is not the ineradicable weed of that name, but Ammi majus, one of the most decorative of the Umbellifere, with pure white flowers. It was also called Bulwort, Herb William, Cumin Royal, &c., and was held in great repute as a cattle medicine. Penny Royal (Pouliot) was also much esteemed. It was known in England as Pudding grass, and in Cheape and Goode Husbandrie it is "Poullioli roiall." The name is a corruption of "Pulegium (Puleium) regale," which became by an easy transition "pouliot" or "poullioli royal," and thereafter the meaningless Penny Royal. "Pouliot Sauvage" is the "Catmint" which Mr. Henlow could not determine. It was called Pulegium silvestre and is Calamintha officinalis, Nepeta. Miller's Dictionary gives one of its names as "Catmint." The plant smells something like the Pennyroyal, hence no doubt the reason for a "common" and a "rozzali" Pulegium.

Another interesting plant is the "Pomme d'Amour (which the Latins call Mala insana) by reason of the beauty of the fruit." I can only give a sample of the naughty things said of it by our translator. "It engendeth cholerick humours, headach, sadness, melancholic dreames, and in the end long continuing agues." Hard words, and these not the worst, to be published of the Tomato! The true Mad Apple or Mala insana was however the Egg-Apple, Solanum oviger

A long chapter is devoted to that portion of the flower garden which was cut up into various shaped beds, and which were called by the names of Compartment border, broken border, and Parterre. The "Compartment" was a small bed, generally square, intricately and geometrically subdivided, and was the simple knot of English gardens. The "Compartment" appears to have been commonly surrounded by a border, which was sometimes subdivided into little beds, and sometimes broken up into small beds with bare spaces between. These were also called knots in England, but in the French edition of this work are named "A Compartiment with borders," or a "Parterre." Sometimes the whole of the ground was broken up into beds of a simple design, and this was a "parterre of broken beds." "Borders" also referred to the space of ground running alongside the walks and to the beds between the "alleys." Surdeet's translation is so badly done in this chapter that one can form no idea of the meaning without consulting the original, consequently, most of these notes are derived directly therefrom. In all the geometrical designs there is a double set of lines, which formed very narrow alleys,

the edges of which were preferably planted with Lavender or Rosemary. Box is condemned on account of its smell. The portions enclosed by these were planted with Pennyroyal, Wild Thyme, Sage, Hyssop, &c., and all were kept closely cut. Sometimes, instead of a geometrical design, a flower de luce, a true lover's knot, a lion rampant, a bird or even a man would be portrayed, these, in every case, being marked out by lines of Rosemary. The surrounding borders were commonly filled with the same plants as the central compartment or knot. Occasionally a dwarf shrub was set in each corner, but care was always taken that there should be an unobstructed view of the whole portico. Not infrequently two species of plants only were used, as, for example, Lavender for an edging and Pennyroyal for a carpet. When the borders surrounding the central compartment were not continuous, but broken into small isolated beds a greater variety of plants were employed, and included Violets, Daisies, Camomile, Marjoram, &c., as Surfleet says, "to give grace to the quarters," but as the original puts it, "to give colour to the little beds." A pretty design portrayed in *La Maison Rustique*, and designated a "Border with simple compartments," will be found in *A History of Gardening in England*, from *The Gardeners' Labyrinth*. In this example the space between the parallel lines consists of narrow alleys edged with Rosemary or Lavender, the interspaces being filled in with Pennyroyal or Thyme. A number of knots recopied from Markham's *Countrie Farm*, as well as the whole of Lawson's designs from *The Countrie Housewife's Garden*, are given in *The Formal Garden in England*, a work brimful of information.

The labyrinth of *La Maison Rustique* was simply a flat design laid out with Lavender or Rosemary as divisions to the walks, which were planted with Camomile, and to supply which, as we have already seen, a space of ground was set apart in the kitchen garden. Labyrinths for a long time were very popular in England, and from a design of Lawson's they are shown to be free from sameness.

I may only shortly add that the ground devoted to the cultivation of "Taxell," Wood, Saffron, &c., as well as the orchard of "Greene Plot," lay close to the gardens just discussed, and all were in close proximity to the dwelling-house. R. P. Brotherston.

(To be continued.)

AMERICAN NOTES.

FROST DAMAGE.

THERE is always a scare in the fruit-growing districts, especially in the "Peach-belt," every spring over the frost-damage to the fruit-buds. We have all grown to expect such talk at this season, and it is usually considerably discounted. It seems probable, however, from reports now obtainable, that the damage this spring has been more general, and on that account quantitatively more than usual. Damaging frosts are reported from California, disastrous freezes from Texas, Oklahoma, and Kansas, and severe cold with snow in Maryland and Delaware. The truck-growers are said to have suffered considerably from biting frosts as far south as Norfolk, Virginia, and North Carolina. It is, however, still too early to predict a certain shortage in any of the staple fruit-crops.

SAN JOSÉ SCALE SCARE.

The talk about the San José scale in this country seems to be diminishing in its flow, and is growing distinctly cooler. On many hands there is a resolute dissent from much of the florid statement which has been most conspicuous for some time past, and conservative expression is generally giving place to the excited talk of a few months ago. There certainly never was any justification for a great deal of the alarm which people felt, and still less for the alarm talk which others talked. For a time it was assumed to be possible and feasible to destroy the scale entirely from eastern orchards and nurseries. But as every experiment in this direction was necessarily a striking failure, the experimenters, who have assumed the necessity of total annihilation, were constantly increasing the feeling of alarm by their negative results. Another very respectable number of horticulturists, nurserymen, fruit-growers, and entomologists felt that extensive and drastic legislation, establishing state, provincial, or inter-state inspections, was very im-

portant, and a great deal of the highly-coloured talk which we have heard was merely the argumentative wash, which is always necessary in getting bills through a Legislature. But now that a few of our best known authorities have taken the stand that neither complete extermination nor legislative restriction is the best means of combating the scale, we find ourselves following a more hopeful lead. Legislation is still felt by many to be important, or even requisite, and some, of course, have not changed the views which they originally formed; but we all breathe easier when we are told that the practical control of the insect has been fully demonstrated—that while it cannot be exterminated, it can be satisfactorily suppressed by feasible means. There can be no doubt that public opinion is fast settling down to a milder view of the situation, and that, for the most part, nurserymen and orchardists, who were measurably frightened, are now taking heart once more.

The Pruning Book is Professor Bailey's latest venture in the literary line. This volume forms another of the Garden-craft series being published by the Macmillan Company. This is probably the first work of any pretensions which has been devoted entirely to this subject, and yet the amount of interest in the theory and practice of pruning would certainly warrant such a book. There have been many good paragraphs and short treatises written on the subject of pruning, as we all remember. Du Breuil, Poiteau, Sachs, Sorauer, Lindley, Koopman, and Barry, with others, have had things worth saying. Professor Bailey has availed himself of their work; but has combined and edited it in his usual felicitous manner, and has added other material which is at least as good as new. Still, the book, as a whole, like others of his recent works, shows the effect of insufficient condensation. Professor Bailey has the best intellectual digestive apparatus in the country for working over old material, and making something new and nourishing out of it; but *The Pruning Book* shows evidences of hyper-digestion. F. A. Waugh.

THE WEEK'S WORK

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

The Latest Peach-house.—The final thinning may now take place—that is, before the stone hardens, leaving a few extra fruits in view of eventualities. It is difficult to say of any particular tree what is over-cropping, as some trees will carry 400 fruits, whilst another may be over-cropped with half the number; and in leaving a crop to ripen, the health and vigour of the tree must receive attention, the stronger the greater crop. Never leave a middling crop, if it can be helped, on a robust-growing tree, or the latter will run too much wood, and it may prove unfruitful until replanted. Naturally large-fruited Peaches and Nectarines require that rather fewer be left on a tree than would be necessary with a variety whose fruit is small or middling in size. For the latter 1 foot superficial is a fair crop; and a little more for the largest fruiting varieties. Nectarines may be thinned of their surplusage in a manner similar to middling or small-sized Peaches. In order to avoid crowding the shoots, give regular attention to the removal of such as are superfluous, and of old and weak fruitless wood. Shoots when they have reached the limits allotted them, must be stopped by having the point nipped out; and laterals, or secondary shoots, nipped in front of the third joint or leaf. The securing of the shoots to the trellis should go on simultaneously with their thinning and regulating. When Peaches are wanted as late as possible, the trees may be retarded by the freest ventilation whenever it is safe to afford air. Red-spider will be apt to infest the trees, but it can be kept in check by heavy daily syringings. Aphides and thrips may be destroyed by fumigation with Tobacco, or vaporisation with the XL-All liquid. Mildew is troublesome in some peacheries, attacking both fruit and foliage. The sulphide of potassium remedy should be applied (frequently given in these pages), and the worst affected leaves cut off and burned. Fruits once affected by mildew cease to grow, and they should be removed likewise. Some gardeners use flowers-of-sulphur against mildew, mixing half a pound of sulphur into a thick paste and adding it to 2 gallons of water, using this with a syringe, and omitting the ordinary daily syringing with clean water for a few days.

Melons.—The plants may be set out on hillocks in hot-bed frames or hot-water pits with every prospect of obtaining good crops. Hot-beds in pits, or frames that have been used for propagating or for Potatoes and other vegetables, if freshened up with stable-dung and tree-leaves, may be used for them, but new hot-beds are best. Let the pits and frames be well washed, and white-washed, first using a wash of petroleum in soap suds, at the rate of a quarter pint of the former to one gallon of the latter, or sulphur may be mixed in the pits, &c. A Melon-bed should consist of not less than 6 inches of heavy loam that has been a year in stack, and this should be raised to 1 foot in the spot where the plants are set out. This will render the fatal malady of stem-canker rarer. Let the soil be made very firm by ramming or trampling it. No Melon-plant should be set out that is weak or insect-infested, and to make sure that no insects are present lay the plants and pots on their sides on a mat, and gently syringe the leaves with warm water. Melons may stand singly 2 feet apart, or two plants may be put out under each light on one hillock, that is at 3 to 4 feet apart. Let the stems be sunk in the soil to a point nearly up to the seed-leaves, and afford warm water to settle the soil. When the roots have taken to the soil pinch out the point. When the day is likely to be fine, afford a small quantity of air early in the morning, increasing it as the day advances, but taking it off if clouds obstruct the sun's rays. In fact, constant watchfulness is required at this season. When no hot-water pipes exist, early closing of the lights, say by 2 P.M., is necessary during early summer, damping the soil only on dull afternoons, but affording a copious syringing if the day is warm and bright, which must be discontinued for a time when the plants flower. Melons on hot beds do not require water very often, and it should only be afforded when the soil is getting dry, and the soil should be on the side of dryness at flowering time.

HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

The Destruction of Insects on Trees and Bushes.—The chief part of the work of the fruit grower at this season is the application of means to lessen the number of his insect foes. Aphides increase enormously fast on the Peach and Plum trees, the foliage being very soon seriously injured by their causing punctures that result in disfigurement, from which there is no recovery, and the crippling of the young shoots. Immediate steps should be taken against them, the lice being much harder to kill when they attain their full size and the leaves curl up. A safe remedy for aphides is a solution of soft-soap at the rate of 4 oz. to 1 gallon of rain-water, and it is a more effectual one if half-a-pint of strong tobacco-water be put to every 3 gallons of the soap-suds. Insecticides should be applied to the trees late in the afternoon. If an insecticide is used of which the gardener is ignorant, the trees should be syringed with clean water within one hour of its application. Compared with the cultivator of fruits under glass, the hardy fruit man is unfavourably placed in regard to the foes that beset him on every hand, and constant watchfulness is called for if they are to be kept in check. Insect-infested trees give poor returns in fruit; moreover, the wood for next season's crop is weakened. Some gardens are provided with a system of underground water-pipes, and it is then an easy matter with the hose to keep trees and bushes free from many of the gardener's plagues by syringing them on alternate afternoons. The water should be directed to the underside of the leaves mostly. Cherries are liable to infestation by a black aphid, difficult to kill, and rapid of increase. In the case of this fruit, some of the worst leaves may be picked off, but care must be taken of all shoots required for furnishing the tree, and the trees should be syringed regularly with soft soap-suds until they are cleared of aphids. Weak trees are more liable to attacks of aphids than vigorous ones, and the use of some phosphatic manure is of great assistance to such in overcoming the effects of a bad attack of this pest. A suitable mixture consists of two-sixths superphosphate of lime, two-sixths steamed bone-meal, one-sixth kainit, and one-sixth nitrate of soda, and from 4 to 6 lb. per tree may be evenly spread over the soil and lightly forked in; and if the weather be hot and dry, a light manurial mulch may be put over all and weak liquid-manure applied occasionally.

Peaches.—In the colder parts of the country, nets, blinds, &c., should remain in use till warm weather sets in, but they must be drawn up by day, or great tenderness of the shoots and leaves will arise.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorking

Dendrobium Phalaenopsis, and Others.—This species is one of the most valuable additions to this popular genus during late years, and is very useful for furnishing flowers for cutting. The plants have commenced to grow, and will therefore need immediate attention, as repotting should be done before the young growths have made much progress, or have emitted roots. Those plants not in need of repotting, may be relieved of the old material from between the roots, and fresh compost afforded. Any that do need increase of rooting-space must be transferred with the least root-disturbance possible. The plants will thrive in pots, teakwood-baskets, or shallow pans, and it is important that they should be small in proportion to the size of the plants. My experience has led me to prefer small, shallow pans, with perforated holes around their sides. Copper-wire handles are fastened to the pans, and they are thus suspended to the roof, the apex of the old bulbs being a foot below the glass. Give ample drainage, and cover this with a thin layer of fibrous peat and sphagnum-moss. It is advisable to include a few thick pieces of crock with the soil, and to pack the compost firmly around the plant. Place the plants in the hottest and lightest position available. Until the new roots obtain a firm hold of the soil very little water will be required. A very thin shading will be necessary, and thus only during the very hottest part of the day. While the plants are exposed to full sunshine, and as the inside temperature increases, ventilation should be gradually increased; but if shading becomes necessary, the amount of air must be slightly reduced. Soon after 2 p.m. the shading should be removed, and for about half-an-hour allow plenty of air to again circulate freely around them. Then as the sun shines full on the plants close the ventilators, and well damp the floors, staging, &c., and syringe the plants overhead with tepid rain water. The temperature of the house may quickly rise to 100° or more. Other species of *Dendrobium* which thrive under similar treatment are *D. superbiens*, *D. Goldiei*, *D. highbumi*, *D. lineare*, *D. stiebelceras*, *D. stratiotes*, *D. secundum*, *D. taurinum*, and *D. Bensoniæ*; also such species as *D. macrophyllum*, *Veitchianum*, *D. Johnsoniæ*, *D. revolutum*, *D. undulatum*, *D. Hughii*, *D. Treacherianum*, *D. O'Brienianum*, and *D. atro-violaceum*. The new *D. spectabile* will succeed in the same temperatures, but requires to be moderately shaded from the sun. The tall growing *D. Dalhousieanum*, *D. fimbriatum*, *D. f. oculatum*, *D. moschatum*, *D. dioxanthum*, *D. calceolus*, *D. clavatum*, &c. that emit roots when the new growths are a few inches high may require fresh material to root in. An excellent place for these species is on the centre stage of the East Indian-house or plant-stove.

Phaius tuberosus.—In a hot moist shady corner of the East Indian-house the remarkable *Phaius tuberosus* should be grown. It is necessary to thoroughly examine each growth of this plant as often as possible, sparing no pains to get rid of the small yellow thrips on their first appearance. If the growths be kept perfectly free from these insects, no difficulty need be experienced in obtaining good flowering plants. *P. tuberosus* being a scandent grower, requires plenty of room for the extension of its creeping rhizomes, and for its long fleshy roots to spread freely in all directions. Rather long shallow pans are best, and they should be filled to two-thirds of their depth with broken crocks and charcoal. Place a layer of sphagnum-moss over the drainage, then a layer of peat; next lay the rhizomes upon this compost, then fill closely up to the stems with living sphagnum moss. After repotting, afford just enough water to induce the moss to grow, gradually increasing the quantity as the leaves unfold, and the roots are seen pushing about in the compost.

Vanda Sanderiana and heat-loving *Cypripediums*.—Plants of *Vanda Sanderiana* that are now rooting freely are seldom over-watered at this season; those that are on blocks or teak-rafts require to have their roots moistened at least twice a day. In the East Indian-house the whole of the *Cypripediums*, if properly potted, should have a thorough watering two or three times a week. Prevent water lodging in the growths of such species as *C. Stonei*, *C. Lowii*, *C. levigatum*, *C. philippinense*, *C. glanduliferum* (priestans), &c. as they are liable to decay from this cause.

Lycastes, such as *L. Skinneri*, *L. plana*, *L. aromatica*, *L. candida*, *L. cruenta*, *L. Deppei*, *L. gigantea*,

L. fulvescens, and *L. lanipes*, may at once be repotted into equal parts of rough fibrous-leaf, peat and sphagnum-moss. *Lycastes* may be grown at the warmest end of the cool-house, and be kept well shaded from all sunshine, even a strong light without actual sunshine will sometimes cause the young leaves to assume a sickly hue. Although moisture-loving plants, they require as much care in watering as the deciduous *Calanthes* in the early stages of growth.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Carnations.—These plants are rapidly pushing up their flowering stems, and, if time permit, a neat painted deal, or Hazel-stake, should be placed to each stem, and secured to it with fixed bands of matting. Such of the plants as may be expressly grown for furnishing flowers for cutting may have one stake only with two or more embracing bands of matting supporting the whole of the stems. This admits of the removal of the flowers without severing the fastening. If extra large flowers are required, disbudding should be resorted to, and one bud only be left on each stem. It is a wasteful method, and has little to recommend it beyond giving size; although it is always advisable to practice modified disbudding, which consists in removing the uppermost side-buds that are in proximity to the central bloom-bud. The beds should be hoed to keep them free from weeds and to aerate the soil; and when hot weather ensues, a mulching of spent Mushroom bedding or cocoanut-fibre should be spread all over the ground.

The Rose Garden.—The growth of the plants is robust, and in our garden there is every prospect of good flowers later on. The Rose-maggot abounds, and hand-picking has to be persistently carried out, or much injury would occur to the Roses. The Rose-aphis is not as yet present in any great numbers; still, precautionary measures should be taken, and the plants syringed with tobacco or quassia-water or soap-suds, or be dusted with powdered tobacco, the last-named being syringed off the plants the following day. Let tying and nailing as the case demands be attended to as the shoots lengthen, doing nothing, however, stiffly. The same remarks hold good for Rose bushes that have their shoots fastened horizontally over the beds with pieces of wire or stout hooked pegs of wood. Fellenberg Noisette, Tea Roses of ramp at growth, Gloire de Dijon, Gloire de Rosamene, Madame Desprez, W. Allen Richardson, Crimson Rambler, and many old varieties of Roses are excellent for this kind of training over the soil.

General Remarks.—The recent rains which have been generally followed by an increase in the temperature, have induced more rapid growth in most garden plants, and many of these will now need attention in the matter of staking and tying. Weeds are likewise growing fast and must be destroyed, therefore let the hoes be kept going on beds and borders. Mowing will take up a good deal of labour, but it must not be neglected or the quality of the turf will soon show deterioration. After every mowing let the edges of the mown part be trimmed with the shears. Hedges of Box, Sweet Briar, Rosemary, Thuya, and *Pyrus japonica*, if it be gone out of flower, should be clipped without delay, and all paths made of pit gravel, rolled after rain, in order to keep a smooth surface.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Chrysanthemums.—Plants, whether intended for the production of large blooms, or to be used for decoration, should now be in a suitable condition for the final potting. Prepare, therefore, all materials that will be required for the work, so that no delay occurs when potting has commenced. For a potting-compost use good turfy loam, with a liberal sprinkling of bone-meal and finely-sifted wood-ashes. Should the loam be rather heavy, a small quantity of sand may be added. Let the whole be thoroughly mixed, and afterwards protect it from rain. Old flower-pots should be thoroughly cleansed, and new ones will require to be well soaked in water. They may then be sorted into sizes, and the crocks placed in them, an operation that should be given every care. Select the desired number of plants, and grade them according to the size of flower-pots they will need. The surplus plants may be planted out, the large-flowering varieties for stock, and the decorative

varieties for potting-up in September. To provide security from winds whilst the plants are out-of-doors, stout posts should be driven firmly into the ground, and a couple of lines of thick wire stretched between them, whereon thin laths or Bamboo-rods may be tied to train up the growths of such plants as are intended to give large blooms. The points of such plants should now be pinched-out if a natural break has not already occurred. Stand the plants on boards to prevent the roots getting into the soil. Bush-plants may be plunged in coal ashes, placing a piece of slate underneath each pot. Keep a sharp look-out for green-fly, dusting the plants with tobacco-powder if in the least degree they are attacked by this pest. Pot firmly, and afford no water for two or three days if the plants were in a moist condition when potted. Syringe them over-head two or three times a day if the weather be fine.

Clerodendron Balfouriana.—Young plants in 4-inch pots, if growing freely, may be given a shift into others 2 inches larger. Train the shoots near to the glass, and fully expose them to the sun. This plant is useful for decoration if grown in bush form, or as a small standard. If intended for bushes, the shoots should be pinched when about 6 inches high, and the operation should be repeated several times during the season. Those for dwarf standards may be allowed to attain a height of 1 foot or more, as may be desired, before they are pinched.

Begonias.—The early-struck cuttings of the winter-flowering varieties will now require a shift into larger pots, using a light, rich soil. Place the pots on a cool bottom in a moderately-warm pit, and shade from the sun. Water with especial care until the plants are growing freely. Cuttings may now be inserted of the later flowering varieties.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

Peas.—Another sowing of Marrowfat Peas should be made, sowing thinly in broad, flat drills; and mould-up such Peas as are above-ground, at the same time placing the sticks to them. If the soil is of a light nature, a mulch of stable-litter, half-decayed, alongside the rows of Peas, and also of Beans, will benefit the plants, keeping them cropping for a longer time than is likely to be the case without it. Let the Pea-quarter be kept clean, and the land stirred with the hoe in dry weather.

Out-of-door Tomatoes.—The present is a suitable time to set out Tomato-plants on vacant spaces on the warmer fruit-walls. There are various methods of securing them in position. I use a stout stake to each plant, $\frac{1}{2}$ feet in length, and fasten the stem to this with broad strips of matting; others fasten to the wall with shreds and nails. It is better to nip off the lateral shoots as fast as they appear; and when the desired number of clusters are set, nip out the point of the stem. Afford abundance of water at the roots in dry weather, after the fruit is advanced somewhat.

Celery.—The plants intended for the early supply of heads should now be planted in heavily-manured trenches, in single or double lines, affording not less distance than 8 inches from plant to plant. Continue to prick out from previous sowings, and sow seeds for the latest supply.

Potatoes.—It is very necessary to keep the hoe at work between the rows, and to mould up all of the early varieties. Sets of Early Kidney varieties may still be planted, and the produce will be found useful in the kitchen, and it will serve also for sets for next year.

Lettuces.—Spring-sown C s Lettuce, unless it be of those kinds that require no tying, should have timely attention in this respect, and when the tying is finished let rapid growth be encouraged, hoeing the land and affording water, if necessary, and spraying the plants in the evening. Transplant some of the plants raised from March-sown seed. My practice is to sow the seed thinly and not transplant. Weekly sowings should be made during June and July, choosing cool moist parts of the garden for these crops.

Parsley.—The flower-stems on last year's Parsley plants should be cut off low down, unless seed be required, and then care should be taken to select for this purpose the finest curled only. Thin out spring-sown Parsley to 6 inches from plant to plant, and make another sowing out-of-doors, and in cold frames and boxes in the open air.

APPOINTMENTS FOR JUNE.

THURSDAY,	JUNE 2	—Linnean Society, Meeting.
FRIDAY,	JUNE 3	—Royal Botanic Society (Lecture).
SATURDAY,	JUNE 4	{ Isle of Wight Horticultural Society, Meeting.
TUESDAY,	JUNE 7	{ Scottish Horticultural Association, Meeting.
WEDNESDAY,	JUNE 8	{ Royal Cornwall Agricultural Show (2 days).
FRIDAY,	JUNE 10	—Royal Botanic Society (Lecture).
SATURDAY,	JUNE 11	{ Royal Botanic Society, General Meeting.
TUESDAY,	JUNE 14	{ Royal Horticultural Society's Committee, Eastbourne Horticultural Society, Meeting.
WEDNESDAY,	JUNE 15	{ Yorkshire Gala and Horticultural Fête (3 days).
THURSDAY,	JUNE 16	{ Linnean Society, Meeting. Rose Shows at Colchester and Isle of Wight.
FRIDAY,	JUNE 17	—Royal Botanic Society (Lecture).
MONDAY,	JUNE 20	{ Royal Agricultural Show at Birmingham (4 days).
WEDNESDAY,	JUNE 22	{ Royal Jersey Horticultural Society's Rose Show.
THURSDAY,	JUNE 23	{ National Rose Society's Exhibition at Bath. Bath Rose and Begonia Show. Ryde Rose Show.
FRIDAY,	JUNE 24	—Royal Botanic Society (Lecture).
SATURDAY,	JUNE 25	{ Windsor and Eton Rose and Horticultural Show. Royal Botanic Society, General Meeting.
TUESDAY,	JUNE 28	{ Royal Horticultural Society's Committee. Royal Horticultural of Southampton Exhibition (2 days). Rose Shows at Leeds and Sutton. Croydon Horticultural and Rose Show.
WEDNESDAY,	JUNE 29	{ Richmond Horticultural Society's Show. Canterbury Rose Show.
THURSDAY,	JUNE 30	{ Royal Horticultural Society of Ireland, Exhibition. Rose Shows at Eltham, Gloucester, and Norwich.

SALE FOR THE ENSUING WEEK.

FRIDAY,	JUNE 3	{ Imported and Established Orchids, at Protheroe & Morris's Rooms.
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AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—58.4°.

ACTUAL TEMPERATURES:—

LONDON.—May 25 (6 P.M.): Max., 59°; Min., 47°.

PROVINCES.—May 25 (6 P.M.): Max., 56°; S. West Counties; Min., 47°, Aberdeen.

The Temple Show.

It is a little difficult to speak with confidence as to the Temple Show, held this week. This much we

may say, that although it was excellent, we do not think it was quite equal to what we have seen on former occasions, especially in the Orchid department—but then we heard others express the opinion that it was better. Certainly it was not quite so large, sundry gaps being visible, but that is not a subject for regret; rather should we be glad if the quantity shown had been less, and the grouping less crowded and more effective. The quality throughout was good, and we do not think we shall err if we say that the quality of the Vegetables in particular was unusually fine. This remark applies alike to the gardeners' exhibits and to those from the trade. Messrs. SUTTON's exhibit of Peas was especially remarkable. We cannot here enter into details, which find a place in another column. Messrs. SANDER's new plants, especially their new *Acalypha Sanderi*, found many admirers, but these have already been figured and described in our columns in connection with the Ghent Show. One plant, however, we must pick out for special mention here, as it was not shown at Ghent; we mean *Dracena Van der Biltii*, a very handsome species with

tufts of long linear leaves striped with yellow and green.

The new *Pandanus Sanderianus* was shown in a fine example, which shows that the plant is likely to have a future as a decorative-plant.

Among Ferns, Mr. MAY's *Phlebodium Maii* was very remarkable for its pinnately-lobed and glaucous foliage. We give an illustration of it in another column, and note it as one of the most decorative of its class.

Messrs. DICKSONS of Chester showed a remarkable *Dracena*, under the name of *D. Kippii*, with very narrow linear recurved deep purplish-red leaves.

Messrs. WALLACE, of Colchester, showed several plants of a new Lily, *L. rubellum*, described by Mr. BAKER in another column, having the colour of *L. Krameri*. A figure is given in another place (see fig. 128, p. 335). The plants at present are small, but very promising.

Messrs. VEITCH showed fine groups of *Caladiums*, a remarkable collection of hardy flowering shrubs, some of which we figure in the present issue, and a noble series of hybrid *Phyllocacti*, forming a most brilliant feature. Among the shrubs were *Hydrangea Hortensia* var. *Mariesi*, with very large rosy-pink flowers; *Philadelphus cornarius* *Boule d'Argent*, with funnel-shaped double white flowers; *Zenobia speciosa* *cassinifolia*, an old but most desirable plant for the shrubbery.

We do not specially look for fruit at the Temple Show, but Messrs. RIVERS' and Mr. HUDSON's pot-trees of this season's growth, and Messrs. BUNYARD's Apples of last year's ripening, were each in their way remarkable. The so-called hybrid Strawberry-Raspberry shown by the last-named exhibitor appears to be a species of *Rubus* pure and simple, with little or no trace of the Strawberry in it.

Roses are always a feature at the Temple Show, and when we mention the names of CANT, MOUNT, the PAULS, RUMSEY, and TURNER, it will be obvious that no falling off was likely to occur.

Messrs. SMITH, of Worcester, staged their fine *Clematis*, but we should be glad to see them now trained in some other fashion. Messrs. JACKMAN's *coccinea* hybrids were very interesting, if not so showy as the larger-flowered varieties. *Duchess of Albany*, with rose-pink flowers, was a specially pretty form.

The little rock-gardens devised by Messrs. BACKHOUSE and CHEAL were, as usual, delightful. In the former exhibitor's group were some very choice specimens, such as *Eritrichium nanum*, *Edraianthus serpyllifolius*, *Lewisia rediviva*, and many others.

It is not our object, however, in this column to give details which belong more appropriately to our report, suffice it if we here congratulate the Society once more on the success of its Temple Show.

A word to the Victoria Medallists—would it not have been fitting if those gentlemen honoured with this decoration had worn it on this occasion? It is meaningless, or it is significant; in the latter case, it should on this occasion have been borne by those entitled to it.

LINNEAN SOCIETY.—The anniversary meeting was held on Tuesday last, when the President, Dr. GÜNTHER, was re-elected, as also the other officers of the Society, and certain changes were made in the Council, according to the statutes. The President gave an interesting summary of our knowledge of the gigantic land tortoises, and at the end of his discourse presented the Linnean Medal to Dr. WALLICH for his researches into the biology of

the deep seas, and other contributions to science. A very interesting feature of the meeting was the presentation of a special Medal to Sir JOSEPH HOOKER on the completion of his *Flora of British India*. Dr. GÜNTHER briefly recounted the services to science rendered by Sir JOSEPH, and alluded to his work as Director of the Royal Gardens, Kew, President of the Royal Society, and of the British Association. Sir JOSEPH was evidently touched by the warmth of his reception, but looked as though the *Flora of British India* was not to be the last of his works, his upright figure and clear voice betokening a capacity for further work. Sir JOSEPH spoke of his election to the Society at a very early age when he was the youngest Fellow; then how he was the youngest member of the Antarctic Expedition under Captain ROSS, and had become the oldest by efflux of time. Sir JOSEPH touchingly alluded to the advantages he had received from the training and the example of his father, and ended by giving some interesting reminiscences of the former history of the Society. The meeting was graced by the presence of LADY HOOKER, and other lady members of the family, a special resolution of the council having, we believe, been obtained for this deviation from established rule.

—At an evening meeting to be held on Thursday, June 2, 1898, at 8 P.M., the following papers will be read:—I. "Notes on some Lories," by Prof. ST. GEORGE MIVART, F.R.S., F.L.S., &c. II. "A Revision of the Genus *Symblespharis*," by Mr. E. J. SALMON. III. "On the Food of the Uropoda," by Surg.-Capt. H. A. CUMMINS, F.L.S., &c.

THE SURVEYORS' INSTITUTION.—The annual general meeting of the Institution, to receive the report of the Council, and the announcement of the result of the election of officers for the ensuing year, will be held on Monday, June 6, 1898, at 3 o'clock. The prizes awarded to successful candidates, in connection with the recent preliminary and professional examinations, will be presented by the President at the annual general meeting.

GREAT ROSE SHOW OF THE RICHMOND HORTICULTURAL SOCIETY.—We understand that the twenty-fourth annual exhibition of plants, flowers, fruits, vegetables, table decorations, &c., will be held in the Old Deer Park, Richmond, on Wednesday, June 29. In addition to the usual prizes and special prizes, there will be a Challenge Cup for Roses, presented by the Mayor and Mayoress of Richmond, Councillor and Mrs. ALBERT CHANCELLOR. His Royal Highness the Duke of CAMBRIDGE, T.R.H. the Duke and Duchesses of ORLEANS, and the LORD MAYOR and LADY MAYORESS of London have, amongst others, already intimated their intention of being present. The honorary secretary is Mr. A. ALGERNON CHANCELLOR, 1, King Street, Richmond, Surrey.

BOTANY IN SCHOOLS.—We learn that the report from the British Embassy at Berlin, with reference to the supply of flowers from the public parks there to the schools, for the study of botany, came before the School Board for London on the 20th inst., when it was decided that letters should be sent to the London County Council and Her Majesty's Office of Works inquiring whether a similar arrangement might not be made in this country. We wish this new departure all success.

THE MARKET GARDENERS, NURSERYMEN, AND FARMERS' ASSOCIATION.—First list of sums paid or promised in aid of Fund for appeal to the House of Lords; Agricultural Rates Act, 1896, Rating of Glasshouses, SMITH and Others v. RICHMOND:—Kelway & Son, Langport, £1 1s.; C. Martin, Worthing, £1 1s.; E. E. Sparkes, Worthing, £1 1s.; W. R. Marshall, Bognor, £2 2s.; John Turtle, Welling, £2 2s.; Norman Davis, Framfield, £2 2s.; E. Sawyer, Lower Edmonton, £1 1s.; E. Bachelor, Harrogate, £1 1s.; C. Whiting, Hereford, £2 2s.; A. Campbell, Southport, £1 1s.; Wm. Iceton, Roehampton, £5 5s.; G. Underwood, Camden Town, £5; Turner Bros., Garston, £2 2s.; W. A. Cull, Tottenham, £2; Ord Bros., North Shields, £1; J. Backhouse, York, £2 2s.;



FIG. 119.—ZENOBIA SPECIOSA CASSINEFOLIA: HARDY SHRUB; FLOWERS WHITE,
LEAVES GLAUCCUS.

(As exhibited at the Temple Show.)



FIG. 120.—*HYDRANGEA HORTENSIA STELLATA*, VAR. *FIMBRIATA*.
(As exhibited by Messrs. J. Veitch & Sons at the Temple Show.)



FIG. 121.—*PHLEBODIUM MAYII*.
(As exhibited by Mr. H. B. May at the Temple Show.)



FIG. 122.—HYDRANGEA HORTENSIA, VAR. MARIESII: HORT. VEITCH.
(As exhibited at the Temple Show.)



FIG. 123.—*PHILADELPHUS CORONARIUS*, "BOUÏE D'ARGENT,"
(As exhibited by Messrs. J. Veitch & Sons at the Temple Show.)



FIG. 124.—*ADIANTUM JEMSLEYANUM*.
(As exhibited by Mr. H. B. May at the Temple Show.)



FIG. 125.—*AZALEA AMŒNA*, MIKADO.
(As exhibited by Messrs. J. Veitch & Sons at the Temple Show.)

J. Tully, 'Enfield Highway, £1 1s.; Fromow & Sons, Chiswick, £10; S. Brandon, Addlestone, £2 2s.; J. Byatt, Hampton, £2 2s.; J. L. Leigh, Newton-le-Willows, £3 3s.; J. Peed & Son, West Norwood, £1 1s.; Veitch & Son, Exeter, £1 1s.; G. Bennett, Hanwell, £1 1s.; A. F. Hobbs, Dunstable, £1 1s. Thirty-six Worthing growers on the basis of their rating (say) £100. The association has determined to proceed with the appeal, although the response to the application for funds has not been so general as the importance of the matter demands. Assistance is solicited from the numerous growers who have not yet contributed. *George Monro, Hon. Treasurer, 32, King Street, Covent Garden, W.C.*

GHEENT SCHOOL OF HORTICULTURE.—We learn that a party of students of this Institution, conducted by the Head Gardener, will visit this country between June 1 and June 6. They purpose visiting the establishments of Messrs. VEITCH, WILLIAMS, and others, and the Royal Gardens, Kew. It is hardly necessary to bespeak for them a cordial welcome, but we regret that earlier intimation could not have been given.

THE AGRICULTURAL SEED TRADE ASSOCIATION held its annual meeting on Monday, the 16th inst., at the office of the president, Mr. J. PICARD, 59, Mark Lane, when the usual business of presenting the report, cash accounts, election of officers for the year, and other matters were transacted. It was also decided to hold the annual dinner at the Holborn Restaurant, and Mr. JOHN HARRISON, of the firm of HARRISON & SONS, Leicester, was thereon elected Chairman for the occasion. Monday last, May 23, was the day fixed for the function, when about thirty members and friends attended, including Mr. N. SHERWOOD (Vice Chairman), also Messrs. A. MOSS, T. THORNTON, H. LE MAY, W. LE MAY, H. AITON, G. EELL, E. MARCUSE, D. ALLESTER (Secretary), and others. In proposing prosperity to the Association, the chairman remarked that it deserved to be better known, and more largely patronised, as it had for its objects the elements for securing a good understanding amongst those engaged in the trade, and providing a permanent Arbitration Board available to all for the purpose of settlement of trade disputes in having a code of rules by which the Agricultural Seed Trade should be carried on. It being the duty of all engaged largely in the trade to join and support the Association, he hoped many who were not members now would soon join; announcing, at the same time, three firms who had recently consented to do so. The Society was established by a few London firms eighteen years since, but now it admits members from all parts of the United Kingdom. Each year the cases for arbitration have become fewer in number, and a law suit seems to be almost a thing of the past, clearly proving the great value of the Association, and the beneficial effects of its influence.

SAN JOSÉ SCALE.—Canada has, we learn, already taken defensive steps against the introduction of this pest from the United States, and now further measures are to come into force, the chief points of which are the following: the introduction of all trees, bushes, plants, Vines (plants), shoots, cuttings, layers from the United States of America, Japan, Hawaii, and Australia. The exceptions are, glasshouse plants, herbaceous plants, Conifers, bulbous and tuberous plants. All plants, &c., seized at the frontier or at the port of arrival will be confiscated and the importers fined, as well as mulcted of the import duty. The executive is empowered when sufficient reason exists to extend the regulations or to repeal them.

H. WITTE.—The hortulanus, M. H. WHITE, of the Leyden Botanic Garden, after forty years of productive activity, has been pensioned. His son I. E. TH. WHITE, succeeds him.

SCILLA CAMPANULATA VAR. COMPACTA ALBA—S. C. VAR. ROSEA.—We are indebted to Messrs. E. H. KRELAGE & SON, Haarlem, for flowers of two new

varieties of *Scilla campanulata*, which show a considerable advance on the common garden varieties of the same colours, of which some flowers were also sent for comparison. The white variety, *Scilla campanulata* var. *compacta alba* (Krelage), has large bell-shaped flowers, and the floral trusses are much larger than in the common white variety. The other novelty, *Scilla campanulata* var. *Rose Queen* (Krelage), is a decided advance on the rosy forms hitherto cultivated, which might have been improved long ago. These two *Scillas* are admirable additions to spring-flowering plants.

A NEW VARIETY OF CHRYSANTHEMUM MAXIMUM.—We have received an improved variety from Mr. J. DAVIES, Hoylake, Cheshire, to which he has given the cognomen *Daviesii*. The variety is valuable as an early and very abundant flowerer. Mr. DAVIES tells us that his two large beds of the plants are at the present time a sheet of white bloom. The first flower opened on May 7, therefore much earlier than any other. It is a fine showy white flower with a yellow disc.

THE NEILL PRIZE.—This much-valued prize, the highest a Scottish gardener can aspire to, was founded about forty years ago by the late Dr. PATRICK NEILL of Edinburgh, by vesting a sum of money now realising about fifteen guineas annually. In accordance with Dr. NEILL's desire the proceeds are awarded every second or third year, at the discretion of the Council of the Royal Caledonian Horticultural Society, to a distinguished Scottish botanist or cultivator. Some of the most distinguished of Scottish botanists and horticulturists have received the honour during the past; and the prize for 1897 and 1898, was awarded at a meeting of the Council of the Society, on Wednesday 18th inst., as we recorded last week, to Mr. THOMAS LUNT, the well-known and accomplished gardener to Sir MICHAEL SHAW STEWART, Bart., Ardgowan, Renfrewshire. Mr. LUNT, who is still in the prime of life, has been in charge of the gardens at Ardgowan for the long period of forty-five years, and besides keeping his extensive charge in perfect order for such an unusual period, is widely-known and highly esteemed among his numerous friends. His services as a judge are highly appreciated, and have been freely and ably given at the shows of most of the leading Societies in the country. Long may he enjoy his well-merited honour. Those who have formerly received the prize are the following:—

Cultivators.—Mr. James McNab, Curator of the Royal Botanic Gardens, Edinburgh, and Superintendent of the Society's Experimental Gardens; Mr. Wm. Thomson, gardener, Dalkeith Park; Andrew Turnbull, Bothwell Castle; Robt. Foulis, Fordel; John Webster, Gordon Castle; David Thomson, Drumlanrig; Wm. Young, Assist. Sec. of the Royal Caledonian Horticultural Society; Malcolm Dunn, gardener, Dalkeith Palace; Angus McLeod, Newbattle Abbey; John Paterson, Millbank; Alex. Kirk, Alloa.

Botanists.—Professor Balfour, Edinburgh; Mr. John Sadler; Mr. Isaac Anderson Henry of Woodend; Charles Howie, Upper Largo, Fife; Professor Bayley Balfour, Edinburgh; and Mr. Robert Lindsay, late Curator Royal Botanic Gardens, Edinburgh.

YORKSHIRE NATURALISTS' UNION.—The 137th meeting of this body, of which the president is Prof. MICHAEL FOSTER, M.A., Sec. R.S., Cambridge; hon. secretary, W. DENISON ROEBUCK, F.L.S., 259, Hyde Park Road, Leeds; and special hon. secretary for this meeting, H. H. CORBETT, M.R.C.S., 9, Priory Place, Doncaster, will be held at Doncaster, for the investigation of Balby, West Moor, Armthorpe, Sandal, Sandal Brickfields, Wheatley Wood, &c., on Whit-Monday, May 30, 1898. Railway arrangements: through return tickets at pleasure-party rates will be issued at all stations on the G.N., H. & B., L. & Y., L. & N.W., M. S. & L., Midland, and N. E. Railways, which have booking arrangements for Doncaster station to members and associates of the Y.N.U. producing their signed card of membership. Tickets taken on Friday, Saturday, Sunday, or Monday, May 27 to 30 inclusive, will be available for return any day up to Tuesday, May 31. Where through

bookings are not in operation, members may book to most convenient junction, and re-book to destination, the reduced fares being available for each stage of the journey. Hotel accommodation: members will find excellent accommodation at The Glyn (Temperance), Head-quarters; The Angel, The Elephant, The Reindeer, &c. On Saturday evening, May 28, an informal meeting and exhibition of objects of local scientific interest will be held at The Glyn Hotel.

PUBLICATIONS RECEIVED.—*Garden-Making*, by L. H. Bailey (Macmillan); *Handbook of Practical Botany*, by E. Strasburger, edited by W. Hilhouse (Swan Sonnenschein); *British Orchids*, by A. D. Webster (J. S. Virtue & Co., Ivy Lane, E.C.).—*Greenhouse Management*, by L. R. Taff (New York, Orange Judd Co.; and to be obtained from Kegan Paul, Trench, Trübner & Co., Paternoster House, Charing Cross Road, W.C.).—*Deboscheriana*; a Reply to M. Charles de Bosschere (Brussels, P. Weissenbruch, 45, Rue du Poinçon).—*Fruit-growers Annual*, by Sampson Morgan (London, Iliffe & Sons, 3, St. Bride's Street, E.C.).—*Nuovo Giornale Botanico Italiano*, Nuovo Serie.—*Thirty-fifth Annual Report of the Michigan Agricultural College Experiment Station* (Lansing, Robert Smith Printing Co.).

HOME CORRESPONDENCE.

ANNUAL DIANTHUSE.—It appears difficult to adequately commend to the notice of lovers of flowers the many interesting forms of *D. chinensis*. It is also difficult to name another annual that is so easy to raise and grow, so quick to bloom, so showy, and so lasting. The species, which has been in cultivation in this country for nearly two centuries, originally came from China, and, with the exception of doubling the flowers, increasing the size somewhat, and extending the varieties, no great change has taken place in it. But they can be made to form charming patches of colour in the garden, and if the plants can be raised in frames, and are then transferred to beds of good soil, and at regular distances apart in the beds, they become very effective; especially if a little attention be given in the way of removing the decaying flowers, so that seed-pods be not formed, then the duration of the bloom is increased. Varieties of *D. chinensis*, both double and single, have been raised and named; but since the introduction of that greatly enlarged form, *D. Heddeewigi*, just forty years ago, the smaller-flowered and less brilliant forms of *D. chinensis* have fallen back to the second place in degrees of notice. In this case the Japanese seem to have developed a new type of the Chinese annual *Dianthus*, as they did of the *Chrysanthemum*. It was M. Heddeewig, of St. Petersburg, who obtained seeds of this new form from Japan, and some were sent to Messrs. Carter & Co., of Holborn, who were the first to flower it and exhibit it in public. The first bloomed seedlings showed variation in colour, and the petal edges were slightly toothed, and this characteristic becoming developed, a handsome form, laciniated on the petal edges, was developed; and thus originated the type known as lacinia. In the case of varieties of the original type, flowers have been developed with almost, if not quite, smooth petal edges, and varieties selected and named; and double forms also have resulted. Some of the best of the single varieties which come pretty true from seed are *Crimson Belle*, bright red; *Brilliant*, of a deeper and more lustrous crimson; *Eastern Queen*, having a very pleasing tint of rose, and such double forms as *white*, *purple*, and that known as the *Mourning Pink*, the purple flowers being edged with white. The type *Heddeewigi* has been crossed with the *Sweet William*, and also with *chionensis*, and some fine double forms have resulted, and these are grouped under the section *hybridus*; while a larger group known as *imperialis* may be regarded as glorified *Sweet Williams*, having compact, fully double blossoms. Of this type there are several varieties, *white*, *striped*, *crimson*, &c., and there is also a dwarf strain with several varieties. Thus there is ample choice, and lovers of the best and most lasting of the hardy annuals should include the annual *Dianthus* in a selective collection. We starve our annuals too much. They are often sown much too thickly in poor soil. They are allowed to grow and flower unthinned, and when they bloom they are too

frequently fugacious and unsatisfactory. Good cultivation works wonders, and no other hardy annual perhaps more appreciates good culture than *Dianthus chioneensis*, and its numerous progeny. *R. D.*

YELLOW-FLOWERED MARGUERITES.—I always read with much interest and benefit Mr. Ward's notes. In your issue of the 14th inst. he deals with Violets and yellow Marguerites for market-work outdoors. What I am surprised to learn is, that he winters his autumn-struck cuttings in cold frame. I scarcely thought they would stand this; but my object in writing this is to ask him, through the *Gardeners' Chronicle*, if he would give me, as well as many other amateurs, a short cultural note on growing yellow Marguerites in pots for winter and spring flowering. I have tried to produce plants such as one seen brought to market, but I have found it the most unsatisfactory plant to deal with. I have plants in all stages of growth, but not one flower have I had during winter or spring out of the lot. Possibly I have been trying to do the impossible. I have tried it in all temperatures. The plants grow like weeds. I cut back half the batch some time ago, thinking as I got the wood older and riper the young growths would burst into flower; but all they do is to increase in bulk. I grow three varieties, the small, flat-flowered sort, also a variety I picked out of a batch in the market a year ago, as it was not pegged down in the pot, as all the others were, and therefore, as I thought, a dwarfier sort. But under my bad culture, as I conclude, it seems, so far as its offspring is concerned, to have lost its dwarf character; the foliage is coarse and succulent looking. What the variety is I do not know. Lately I bought in a variety which I was told is the best, and named *Feu d'Or*; whether this will be more reasonable in its requirements, in order to get it to flower during winter and spring, I cannot say. I have just struck a batch for next winter flowering; I propose to treat these as one does zonals for winter-flowering. I know I should be, and I am certain many others would be, indebted to the *Gardeners' Chronicle* for a Cultural Note on "How to Grow Yellow Marguerites for Winter and Spring Flowering." Of course, I mean plants in shape and form such as the market-men produce, with level heads a mass of bloom. *A. E.*

GARDENERS' ORPHAN FUND.—As one who has in times past taken some interest in this Fund in connection with the concert scheme of assistance (a scheme, most unfortunately, now in abeyance), I read the remarks of your correspondent in connection with this very deserving charity with much interest. Yes, it is a very lamentable fact that the Fund is not supported at all as it should be by members of the craft. I would venture to give expression to the opinion that the executive committee of the Fund are not altogether blameless for this truly unfortunate state of affairs. The majority of working gardeners are absolutely shut out from participating in what should be a genuine gathering of gardeners in connection with their own fund at the Annual Dinner by reason of the prohibitive price fixed to ensure attendance thereto. True, those who attend do not forget the appeal made to them; but such substantial aid is very dearly purchased if it shuts out those who should be the main support of an institution that was specially designed to relieve the orphans of gardeners—an institution that is certainly ignored by the main body. Why not—as in the early days of the Fund—have a really genuine gardeners' gathering, with the price of admission to it suited to the means of gardeners? And why does not the committee strive to get young gardeners to take an interest in a fund that may have special claims upon their support? *Life Member.*

PROTECTING PEACH-BLOOM.—When a few days since at Dropmore, where Mr. Herrin has Peach-trees on the open wall, on high and on low ground, some distance apart, I observed that there were on the trees remarkable sets of fruit in every case. Naturally I asked, "Did you give these trees any protection when in bloom?" and he said "Yes, when in full flower I hung over them fish-netting doubled." That was one for the protectors. But whilst in the upper garden there is but a south wall, in the lower garden there is a west wall also, and on this are numerous Peach and Nectarine-trees, also carrying heavy sets of fruit. Here it was only the rather earlier-bloomed trees on the south walls that had net protection, the west wall not getting any; and this is on low-lying ground. Therefore this is a point in favour of the net protectors, as it leads to the inference that such protection as was given, little enough after all, did no good, and was so much useless

labour. On some of the trees where thinning had not yet been done, the fruits would have to be reduced by about three-fourths. I noticed that none of the trees are luxuriant. That luxuriance is a bad feature in Peaches always, and accounts very often for failures to set bloom, is a matter of common knowledge. Generally outdoor trees get too much digging about, and too liberal manuring. The late Mr. Lindsay when at Ditton Park, Slough, was one of the most successful Peach-growers on outside walls, having no Peach-houses. His wall was always a fine picture in the autumn when full of fruit, and he had no elaborate means of protecting his trees. Generally they had none at all, and the results were of the best. *A. D.* [Our experience of south country gardens, and more especially those round town, shows that, in a season like the present following a mild winter, but little protection is needed, but in a cool spring following a hard winter, protection has a good deal to do with securing a crop of Peaches, Nectarines, Apricots, Pears and Plums, &c. The reason may be that the severe cold of what is called a "hard winter" extracts the sun-heat from the soil, whilst after a mild one, marked probably by heavy or but little rain, some of the latent heat is still there, to aid in warding off the ill effects of such spring frosts as we may chance to get. *Ed.*]

TRAMPLING ON AN ONION BED.—While reading Mr. McHattie's article on spring-sown Onions, it recalled to mind a "wrinkle" imparted to an old friend, a worthy schoolmaster, in the North. The said "wrinkle" was, that when the Onions were about 2 inches in length, he was to firmly tread, not between the rows, but on the plants. "This," says the Dominic, "I decided to try; but thinking it such a cruel procedure, and to mitigate its more crushing effect, I took off my boots, and carried out the process in my stocking feet." Unfortunately, I never found out how the "wrinkle" succeeded, so cannot advise as to its efficiency. *J. McCullum, Dorincourt Gardens, Whyteleafe, Surrey.*

PROTECTING PEACHES, ETC.—In reference to your correspondent "A. D.'s" note on this subject in the *Gardeners' Chronicle*, May 14, I may state that I have followed the practice of covering for several years past. I agree with "A. D." that night frosts are undoubtedly what we have mostly to contend with, and hailstorms by day occasionally. I have no doubt in the low-lying country around Lincoln, where frosts are more severely felt than on higher lands, it is absolutely necessary to protect the trees. Of course, it is equally necessary to take away the covering early in the morning. My experience of Apricots here is, that to cover them usually ensures abundance of fruit. This year the fruit set thickly in clusters all over the Apricot trees, and I have pulled off quite six for every one left, and still have a heavy crop. Last year the show of blossom was not so good, but I got a good average crop notwithstanding; and the year before I had a very heavy crop, similar to this year's. I must say, that unless I had protected the trees this year when the frost exceeded 16° for several nights at the time when the trees were in bloom, the fruits would have been very few. Our Apricot-trees are unusually healthy, and the heavy showers have kept them clean and soaked the ground. The Peaches, however, are not nearly so healthy, although there is a good set, but the cold nights have caused curl to appear on the leaves; they will with warm weather grow out of this state, and make good progress. *M. Cooper, Boultham Hall, Lincoln.*

A SOUTH DEVON GARDEN.—My garden has been very gay with *Narcissus* and *Anemone fulgens*, but they are now all over. Roses are well in bud, and *Pyrethrums* promise well. *Buddleia globosa* is coming into flower. *Primula Sieboldi* (pink) has been out all winter, and is now blooming freely. *Mandevilla suaveolens*, out all winter, is growing well, but I doubt if I shall flower it, as the plant is too much exposed. It flowers well all over a neighbour's front verandah, well protected behind some old Myrtles and Pomegranates. A friend has just taken me to see his young plant of *Embothrium coccineum*, in this village, just 10 feet high. I counted eighty-four trusses of bloom—there may have been more. It is the most glorious thing I know. Mr. T. B. Bolitho, M.P., has much larger plants both at Greenway on the Dart and at Irwidown, near Penzance; and his cousin, T. R. Bolitho, has also a large plant at Trengwainton. The largest plant I know is at Trellisick, but it was not in bloom when I was there. I have *Heuchera coccinea* in flower and *Ourisia* coming out, also *Ixia*. *W. Thomson, Bishop's Teignton, Teignmouth.*

DOUBLE WHITE AURICULA SNOWDROP.—The plant of this exhibited at the Temple Show represents some twenty years of patient selection. I began at that distance of time with a plant which had white single flowers, but which occasionally threw a flower or two showing an extra petal issuing from the tube. The first two year seedlings for these semi-double varieties produce seed fairly freely, showed but little change; but twelve years afterwards I secured a very good double white, which I unfortunately lost. It was like beginning the work over again, and having one or two semi-doubles by me, I made further attempts, keeping two or three of the best of the whites as seed-bearers. It was curious to note that seedlings from white flowers only would for two or three generations show no trace whatever of white; and then, when I feared I had lost the line of descent, a white would appear, and my persistence be rewarded. It was in the year 1886 that the variety Snowdrop appeared, which it must be admitted is fully double, as well as a robust grower. All the flowers of white Auriculas that I have yet raised open of a dull primrose tint, but gradually they bleach to white. Owing to the dull, cold weather, the flowers of Snowdrop have been fully a month in unfolding. It is also interesting to note that the various relays of seedlings have given me splendid doubles—maroon, plum, yellow, blue, and mauve colour; and I have now a collection of a dozen double varieties, the like of which probably could not be found in Europe. The double Auriculas are all late-blooming, and generally at their best about the second week in May. *R. Dean, V.M.H.*

STRAWBERRY ROYAL SOVEREIGN.—Why has this variety become so popular for forcing? In the first place it has large fruits, and in advocating mere size I lay myself open to criticism, as many private growers condemn size if quality be lacking. I agree with them in a measure, but in these days, when size in fruit is so great a feature, in order to keep pace with the times, I fear we must not overlook size as one point. Royal Sovereign is not poor in quality when given the conditions necessary to the production of good flavour in other fruits. This season I have tasted fruits equal in quality to some of our best standard varieties, and I am sure that flavour, so far as this variety is concerned, largely depends upon the cultivation. Free-cropping is another cardinal point, and one very difficult to deny, and Royal Sovereign is easily first for this, being in weight of crop and average size of fruit very satisfactory. I very much doubt if such splendid fruits as Mr. Norman staged on the 10th at the meeting of the Royal Horticultural Society (see fig. 126, p. 331) have been seen previously, and his testimony as to the worth of this variety is strong. For years I grew Auguste Nicaise, a variety valuable for its size alone; but they are not at all regular in this respect, there being a few very large fruits, and many small ones. The foliage, too, is much subject to red-spider, and a variety with hard or smooth foliage is much less subject to green-fly and red-spider. Other points are firmness of the fruits, and Royal Sovereign has firm fruits, and when fruits are needed to send long distances, it is a great gain. I do not know of any variety that travels better. For the last few years I have been reducing my forcing varieties in favour of Royal Sovereign, and this was not done until repeated trials had convinced me of its worth. Now I pot it up in thousands, and if the fruits are well thinned at an early stage of growth, and they are finished with ample air and light, there is little fault to find with it in regard to size, quality, or crop. For the open ground the variety is equally useful, but I use young plants, as it grows so freely in one season, and the young plants crop so well, that there is no need to keep older plants. In the case of any older plants, I find it advisable to reduce the number of trusses. *G. Wythes.*

SOCIETIES.

ROYAL HORTICULTURAL.

THE TEMPLE SHOW.

MAY 25, 26, 27.

THE great show of the year was, as usual, held in the Temple Gardens, through the courtesy of the Benchers. The arrangement was the same as on former occasions, and we believe the attendance of the public was larger than ever.

GROUPS OF PLANTS.

In the big tent, Messrs. G. JACKMAN & SON, Woking Nurseries, Surrey, showed an exceedingly pleasing group of

small-flowered Clematis plants, trained on balloon trellises. The varieties were Sir T. Lawrence, a crimson tubular flower, like those of *C. coccinea*, from which they are derived, the reverse of a duller hue; Duchess of York, bluish-coloured, also tubular; Admirable, puce, each segment furnished with a whitish central band; Countess of Onslow, bright purple; Grace Darling, rosy carmine; and Duchess of Albany, light and deep shades of rose. There were several plants of each variety, and arches were thrown over towards the back of the group, on which plants of *C. Countess of Onslow* were trained, thus relieving the otherwise stiff ensemble. The varieties represent a new type of hardy Clematis, and were well grown and furnished with foliage and blossoms.

Mr. W. ICEYON, Putney Park Lane Nursery, S.W. exhibited a good-sized miscellaneous group, consisting of *Dracena Sanderiana*, *D. australis variegata*, *D. Doucetti*, *Codiaeum Weissmanni*, a number of *Cladiums*, with brilliantly-coloured leaves; *Ericas*, *Kalosanthes* in variety, very fine Lily of the Valley, as cut flowers; *Mandarine Oranges*, *Adiantums* in variety, *Azalea mollis*, and *Lilium longiflorum var. Harrisii*, the group being backed with Palms, *Araucaria excelsa*, Bamboos, &c.

Messrs. J. WATERER & SONS, Bagshot, Surrey, had a corner exhibit of *Rhododendron hybridum*, consisting of plants ranging from 2½ to 6 feet in height, and most floriferous. We noted Baroness Henry Schroder, pale bluish with a patch of purple hued spots on the upper segment; Duchess of Connaught, of a creamy-white tinge adorned with a patch of

variety, as round-headed bushes, was made much use of. *Ceanothus Veitchianus* (own raising), with the habit of *C. rigidus*, and numerous short spikes of blue flowers, is a pretty subject. *Rosa Wichura Manda's Triomphe*, belongs to the *Rosa Polyantha* section, and has small white flowers that come in loose panicles. *Eremurus himalaicus* was a plant that was freely used in the group. Its shaft measures, including the floral portion, some 5 feet in height; and the flowers are white, small, and densely arranged, a fine border or rockery plant. *Lycium barbarum foliis variegatis* is a desirable plant for the wild garden, and the variegation is creamy-white on green. *Fabiana imbricata* was shown in bloom, also several *Cytisus*, including *C. scoparius var. Andreanus*, *C. s. grandiflorus*, *C. s. purpureus*; *Eulalia japonica gracillima*, a strong-growing (4 feet) green grass, probably of use in decoration as a pot-plant. *Vitis heterophylla foliis variegatis*, *Yucca gloriosa variegata*, a distinct variety of Adam's Needle; *Rhaphiolepis japonica* in a well bloomed example; *Arundo Donax variegata*, *Spirea Anthony Waterer*, with corymbs of flowers of a deep crimson colour, abundantly produced; and *Rhododendron hybridum Helene Schiffner*, with pure white flowers. The back of the group was furnished with *Prunus Pissardi*, Japanese, and other *Acers*, &c.

Messrs. J. VEITCH & SONS exhibited in the small adjoining marquee a number of *Codiaeums* (Crotons), showing the perfection of cultivation, the leaves clean, fresh-looking, and

Messrs. CANNELL & SONS, Swanley, showed 150 *Cannas* in about forty varieties of these showy plants. Quite new are *Leon Vassiliera*, the largest of its kind, scarlet, with dark-coloured foliage; *Britannia*, yellow with a patch of scarlet on the central area of each segment. Of slightly older varieties, we remarked *Italia*, *Paul Maylan*, *Beauté Poitevin*, *Aurore*, *General Miribel*, *Reich's Kanzler Fürst Hohenlohe*, flowers of a soft yellow hue; *Comtesse L'Etoile*, flowers yellow, densely spotted on all the segments; *Duchess of York* is similar to the last; and *S. Imen Queen*.

Messrs. F. SANDER & CO., Nurseries, St. Albans, showed a striking group of plants, most of which had been already shown at Ghent and figured in our columns, consisting of many examples of *Acalypha Sanderi*, with plenty of flowers on each (First-class Certificate); *Dracena Vander Bilt* (two plants), like to, but dissimilar from *D. Doucetti*, the variegation being of a bolder kind, and the leaves longer; *Phoenix Roebelini*, *Dracena Godseffiana*, *Lieuala Jeanencyei*, two plants, a distinct looking species, *Acalypha Godseffiana*, *Pandanus Sanderi*, *Anthurium Novelty*, with a spathe, probably monstrous, which was of a green tint at the base, and the rest of the area deep crimson colour. An Award of Merit was recommended to *Areca llesnani*, a very graceful Palm at present in a young state, the newest leaf being high coloured.

Messrs. R. & G. CUTHEBERT exhibited a group of *Azalea mollis* × *siensis* varieties, including *Anthony Koster*, flowers of a soft yellow tint; *C. Maaschalk*, also yellow, a small flower, and some few others. *Azalea mollis* hybrids remarkable for colouring, form, or size of flowers, were *Gen. Goffinet*, with pink flowers; *Alphonse Lavallée*, with orange-scarlet ones; *Chevalier de Reati*, flowers of pale canary-yellow tint; and *Comte de Quincy*, with deep yellow-coloured ones. The rest of the group consisted of *Azalea rustica fl. pl.*, considerable variety, all of which are beautiful subjects the American garden.

GROUPS OUT OF DOORS.

Hardy are plants in out-of-doors groups were shown by Mr. JOHN RUSSELL, of the Richmond Nurseries, Richmond, Surrey, who also showed Japanese *Acers* in variety, variegated *Ivies*, Tree *Ivies* in variety, of various heights up to 2 feet; and *Encymus latifolius albus*, a showy plant for masses or edgings.

Messrs. LITTLE & BALLANTINE, nurserymen, Carlisle, showed *Holly Golden King*, a companion-plant to the old *Silver Queen Holly*, which, as everyone knows, is a very slow grower. This new variety is robust, and of larger growth. The young leaves are "golden," and the older ones of a paler or creamy tint.

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, had a group of *Rhododendrons* in bloom, interspersed with Bamboos of various species and sizes, from 2 feet to 10 feet in height.

Messrs. FISHER, SON & SIBBAY, Royal Nurseries, Handsworth, Sheffield, showed a number of Japanese *Acers*, viz., *reticulata*, *rubrifolium*, *septemlobum*, and others, with an edging to the group of *Hedera spectabilis var. aurea*. An adjoining and much larger bed was filled with picture plants in variety, including *Acers*, *Prunus Pissardi*, variegated *Ivies*, *Cornus Späthi*, *Andromeda japonica albo-marginata*, *Corylus purpurea*, a useful if somewhat dull-purple-leaved hazel; *Alnus glutinosa purpurea*; a pretty lacinate-leaved Elder, *Sambucus racemosa plumosa aurea*; *Quercus macrophylla*, *Q. pannonica*, *Cornus sibirica elegantissima*, with effective silvery variegation; *Betula purpurea*, also an effective plant; *Amygdalus persica purpurea*, a purple-leaved Peach, an American introduction, and an improvement on *Prunus Pissardi*, in that the colour does not become dull with age. An interesting group of hardy trees and shrubs doing well in South Yorkshire, and consequently hardy enough for any part of the country.

Messrs. J. CHICAL & SONS, Lowfield Nurseries, Crawley showed a group, in which were remarkable plant of *Azalea mollis*, of *Azalea amara splendens*, the latter the bright crimson flower of small size, and as numerous as in the type, a good plant for small beds and margins of bigger ones; *Sambucus serratifolia*, a variety with very graceful foliage; *Andromeda formosa*, with nice-looking, attractive, bronzy, young foliage; *Acer platanoides purpureum*, and other *Acers*, including *platanoides Lindleyi*, with creamy-white variegation; *Kalmia glauca*, a dwarf plant with corymbs of small rosy-bued flowers; *Acanthopanax pentaphyllum foliis variegatis*, a pretty subject requiring slight winter protection; several *Biotas*, *Cupressus*, *Thuas*, *Platanus Lyallii*, a plant 6 feet high; *Eurythia Gunni*, and a few *Rhododendron hybridum*.

Messrs. THOS. CAIRNS & SON, Tunbridge Wells Nurseries, showed a collection of Japanese Maples, in a few quite hardy varieties. The plants had been allowed to assume their natural habit of growth, and showed scarcely any trace of training, for this reason the more pleasing probably to many persons.

Messrs. BALCHIN & SONS, Hassocks Nursery, Sussex, made a magnificent group of such plants as *Erica Spenceri*, *E. ventricosa* in variety, *Boronia serrulata*, *B. heterophylla*, *Phenocoma prolifera Barnesii*, *Leschenaultia biloba major*, and the purple-flowered, *Achimenes-like Browallia elatior*. The cultivation represented by this group was most perfect, being equal at least to former exhibits from the same firm.

M. SMET DE VIERIE, of Mont St. Amand, Ghent, Belgium, exhibited a group of seedling varieties of *Anthurium Scherzerianum*, many of which were attractive, ranging from pure white to deep crimson. An Award of Merit recommended to a variety *Senateur Montefiore Lerex*, the spathe being curiously mottled red and white.

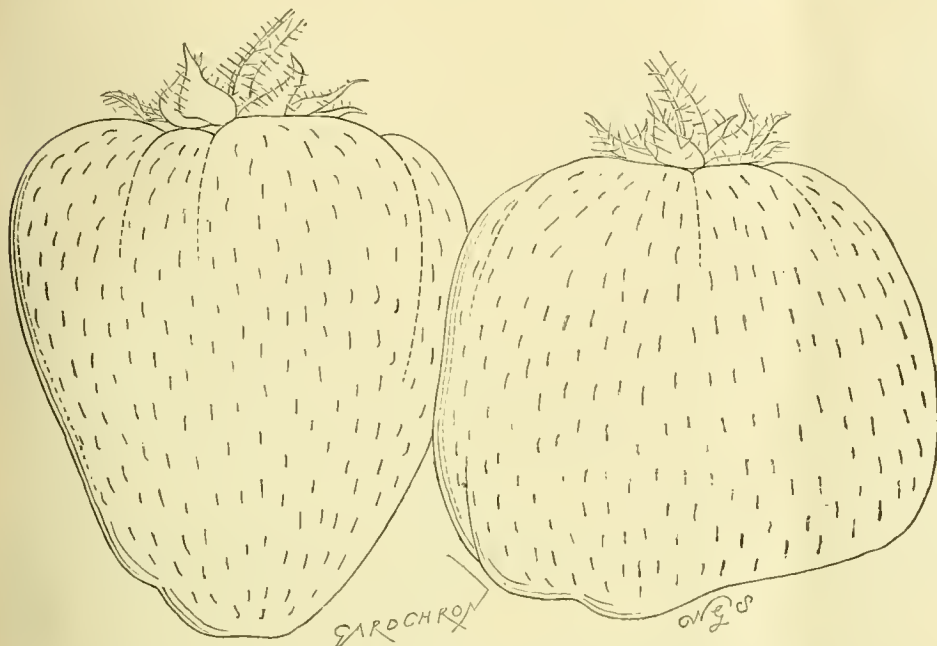


FIG. 126.—STRAWBERRY ROYAL SOVEREIGN.

(Taken from fruits grown at Hatfield House by the Premier's Gardener, Mr. G. Norman.)

yellow spots; *Saphir*, white, with a dense purple patch; *Princess of Wales*, cerise, and white throat internally; *J. Marshall*, *H. Brooks*, with deep crimson flowers. Mrs. W. Agnew, Minoie, John Walter, W. E. Gladstone, rosy crimson, and numerous other old and fine varieties were included in the group.

Messrs. J. VEITCH & SONS, LTD., Royal Exotic Nursery, Chelsea, staged a very interesting collection of hardy plants, including amongst others, *Viburnum macrocephalum*, a plant furnished with about a score of heads of white blossoms, the height of the plant being 2 feet; *Hydrangea Hortensia Mariessii* (fig. 122), large corymbs of flowers, surrounded by a row of barren flowers, of a pale-pink colour; *H. Hortensia rosea*, not so effective, but similar to the first named; *H. Hortensia rosea*, a brightly-coloured variety of this common species, with large corymbs of flower; and *H. Hortensia stellata-fimbriata* (fig. 120), pinkish-white, the corymbs consisting entirely of barren blossoms, and consequently an effective plant; *H. paniculata var. grandiflora*, has flowers somewhat exceeding the type in size. *Zenobia speciosa cassinefolia*, a plant well furnished with flowers (fig. 119); *Philadelphus Lemoinei*, small white blossoms abundantly produced; *P. coronarius Boule de Neige*, a striking variety with ivory-white blooms of a large size; *P. c. Candelabra*, white, is a desirable variety, as is also *P. c. Boule d'Argent* (fig. 123). *Azalea pontica var. Fania*, flower of pale pink and the plant most floriferous; *A. p. Gloria Mundi*, orange and yellow flowers; *A. p. Bouquet de Flore*, light yellow and orange-coloured flowers; *Azalea amara Mikado*, salmon-coloured flowers, very numerous produced (see fig. 125); *Azalea mollis* × *sinensis* T. J. Seidel, with rich orange-scarlet flowers; *A. m. x. s. Dr. Reichenbach*, similar to the last named; *A. m. x. s. M. Desbois*, very large blooms of an orange and pink tint. *Rhododendron Prometheus*, a richly-coloured

of perfect form. We remarked the varieties *Prince of Wales*, one of the spirally-twisted-leaved section; *Flamingo*, green leaf, with a yellow-hued midrib; *Albert Truffaut*, leaf mottled yellow and green; *Eugenes Chantier*, *Aigburth Gem*, *Reedii*, an imposing variety, with entire leaves, coloured crimson-green when aged, marbled yellow when young; *Challenger*, long, broad leaves; *Hammondii*, semi-erect leaves, narrow, and channelled, green with a yellow midrib when young, and of a crimson hue when aged; *Hawkeri*, leaves half white and half green; *Golden Ring*, and *Schomburgkianus*. The remainder consisted mostly of older and better-known varieties.

Messrs. FROMOW & SONS, Sutton Court Nursery, Chiswick had a group of Japanese *Acers*, grown as standards and dwarf bushes, very effective in their leafage and varied tints. Most of the varieties known in gardens were represented. The group was enhanced by the introduction of a few *Lilacs longiflorum*.

Messrs. RICHARD SMITH & CO., Nurseries, Worcester, had as usual in recent years a grand group of trained Clematis in pots, including the snow-white variety of *C. Jackmani* section; *Madame Van Houtte*, white; *Mrs. George Jackman*, a very fine white variety, with flowers less stately than most Clematis; *Princess of Wales*, flowers of a fine blue, and of excellent shape; *Marie Lefebvre*, flowers of the lightest blue or mauve shade, a central line of a darker tint running down each petal; *Madame Edouard André* (of Jackmani type), colour ruby-red; *Countess of Lovelace*, *Blue Gem*, *Enchantress*, *Belle of Woking*, a double flowered, of a light blue tint; *Lucie Lemoine*, a double white flower. *Purpurea elegans*, still one of the best of its colour, bluish-purple; *Gloire de St. Julien*, a very light violet-hued bloom; *La France*, of the laugiosa section. The groups were faced with *Boronia alata*.

Mr. V. N. GAUNTLET, of the Green Lanes Nurseries, Redruth, showed fifty species of *Bambusa*, including beside better known ones *B. Boryana*, *B. marmorata*, *B. nobilis*, *B. aristata*, *B. vittata argentea variegata*; *Arundinaria Falcata*, *A. auricoma*, *A. gracilis*; *Phyllostachys nigra*, *P. n. punctata*, *P. Castillonis*, *P. heterocycla*, *P. d. xuosi*, and *P. aurea*. We are unable to say that the plants showed good cultivation, although they illustrated the capabilities of the Cornish climate.

CALADIUMS.

The group of *Caladiums* from Messrs. JOHN PEED & SONS, Roupell Park Nurseries, Norwood Road, S.E., was a very handsome one. Looking towards the back of the exhibit, where a row of *Palms* partially screened the side of the tent, the furthest plants were magnificent specimens of culture; and though they were not of the newest varieties, they represented either standard old ones, or gems that were novelties a few seasons ago. We noticed *Triomphe de Comte*, *Reine de Danemark*, *Comtesse de Maille*, *John Laing* (ever a distinct and desirable *Caladium*), *Duchess of Teck* (a pale-leaved sort, that was a pleasant relief to the highly coloured pieces); a fine plant of *Madame J. Box* looked handsome, also *Baron Adolphe de Rothschild*, *Princess Royal*, *Icarus*, *John Peed*, *Charlemagne*, *Henry Dixon*, *Silver Cloud* (very pretty), *Comte de Germigny*, *Sir Henry Irving*, *Sir W. Harcourt*, *Mr. W. H. Cummins*, and *Ibia Rose*, pretty plants of this last very desirable variety. The face of the group consisted of lesser plants of greater novelty. One of the most striking of these quite new was named *W. E. Gladstone*. This has leaves with very bright-coloured veins suffusing part of the lamina, and the margins are green; *Le Nain Rouge*, a self-coloured leaf of some depth; *H. J. Chapman*, a very delicate-looking plant, with pinkish coloured leaves, and deeper veins. This plant had been much damaged by exposure, otherwise we think it might have presented a fine appearance; and *Charlotte Hoffman*, nearly pure white, very dwarf.

Messrs. JNO. LAING & SONS, Forest Hill Nurseries, London, S.E., whose *Caladiums* have generally been a feature of the Temple Show, again made a fine display of these lovely plants on the present occasion. Divided only from Messrs. Peed's group of similar plants by a group of flowering plants, those from Messrs. Laing at once strike the visitor (especially if that visitor be a connoisseur) that the many good things in the group would have been of greater individual effect had more space been given to the plants. Beyond this, however, the picture the group presented was one of infinite variety of tint, and the cultivation was remarkable in the high colours to be seen in those varieties that are noted for this characteristic, and for the robustly healthy appearance of the plants generally. Such varieties as *Flammant Rose*, *Altaïre*, *Triomphe de Comte*, *John Laing*, *Flambeau*, *Madame Mitjana*, *Baron de Mamore*, *Rose Laing*, *W. Marshall*, *Baron Adolphe de Rothschild*, and other specimens as large were faced by equally pretty, though smaller plants, some of which were novelties. Of the novelties, an Award of Merit was recommended to *Guatigueter*, a highly coloured shade of crimson leaf, with prominent veins; and a pretty broken margin of green. Other novelties were *Garten inspektor Siebirt* and *Jaquary*, a round with pea-green margins and coloured heart. Other small plants of lesser novelty, but of equal attractiveness, increased the beauty of the group.

The group of *Caladiums* from Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, was better than anything of the same nature we have previously observed from this well-known establishment. In the centre of the back row was a gigantic plant of *Madame John Box*, one of the finest plants ever exhibited. Its effect was glorious; whilst on one side of it was placed a plant of *George Berger*, in which the colour was unusually good; *Baron Adolphe Rothschild*, candidum, *Gaspard Crayer*, *Sir Henry Irving*, and a fine plant of *Mrs. Harry Veitch* completed the back row. In front were capital specimens of *Mme E. Pynaert*, *Lord Derby*, *Mme. Groult*, *Williamsii*, *Louis Van Houtte*, *Raymond Lemoine* (a most Lizarre-looking variety, but very attractive), *Triomphe de Comte*, with magnificent colour, *Silver Cloud* (a beautiful variety of last year); *Rose Laing*, *Ignate*, *Martha Laforge*, *Sir Julian Goldsmid*, *Comte de Germigny*, and *Duchess de Montmart*, all these were beautiful, and grouped thinly in frames of Fern, that all and each could be conveniently seen and admired. The front row consisted of perfectly or comparatively new varieties. *Lady Mosley* and *Sir Stafford Northcote* we saw last year, but the latter especially was more magnificent now, and may be noted as a first-rate and striking novelty. The *Mikado*, *Jno. Luther*, and *Edith Luther*, are quite new, and of these we think *Jno. Luther* will prove much the best; and it possesses a new tint in *Caladiums*.

Messrs. F. SANIER & Co., St. Albans, obtained an Award of Merit for *Caladium Ami Schwartz*, a seedling from *C. albanense* (shown by this firm last Temple Show, and illustrated in these pages), and *C. Madame J. Box*. The seedling is a pretty plant, with deep red shield-shaped leaves, margined green.

BEGONIAS.

The tuberous-rooted *Begonias* were distributed in several tents. Those in tent No. 4, with the magnificent *Calceolarias* from Messrs. JAMES & SON, and *Cannas* from Messrs. H. CANNELL & SONS, created an enormous blaze of colour. Indeed, in this tent generally the wealth of flowers was extremely lavish.

Mr. H. J. JONES, of the Ryecroft Nurseries, Lewisham, covered his allotted space of 100 square feet with closely-packed plants of single and double-flowered varieties, pro-

miscuously mixed one with the other. Few of them we named, but the strain was a proved good one, by the bright large flowers, which were of much substance, and the large number of them on the plants. *Dorothy Linford* and *Elie Wright* are novelties, each of which is bi-coloured, has a white centre, and is very pretty.

A group of *Begonias* from Mr. J. R. Box, West Wickham and Croydon, was very gay. The double-flowered varieties were placed in the centre, with single flowers on either side of them. The plants were prettily interspersed with *Adiantum Ferns*, and they were of capital quality, whether single or double-flowered. Of doubles we noticed *Zelinda*, a beautiful cherry-red flower; *Hogarth*, semi-double, large flower, bright and vivid scarlet; *Mias Leonard*, very delicate flower, pale lemon-coloured, about 3 inches broad and 2 inches deep; *Harmony*, a prettily tinted salmon-pink-coloured flower, of large size and good form; *White Lady*; *Defiance*, a scarlet-crimson; *Orient*, scarlet-crimson; *Eureka*, white, *Opal*, a fine salmon-pink. Of single-flowers the whites and yellows were extremely fine. *Belona* (white), *Zenobia* (yellow), *Canary* (yellow), and *Hecla* (a very fine deep rose-coloured, widely-expanded flower) were noticed. *Prescrpine* is a smart-looking cerise-coloured variety.

Messrs. CANNELL & SONS, Swanley, made a somewhat smaller exhibit of *Begonias* than usual, but in a small area; a selection of single and double-flowered varieties was put up, that went to maintain the high position Messrs. Cannell have attained in relation to the cultivation of these plants. *Lord Rothschild* was an exceedingly bright double and *Miss A. Stewart*, a large yellow single-flowered variety.

Mr. THOS. S. WARE, Hild Farm Nurseries, Tottenham, had a narrow bank of *Begonias* in Tent No. 3, and the plants made a glorious display. Both single and double-flowered varieties were exquisite, all of the plants being exceedingly well-flowered, whilst the blooms themselves were of fine size and substance and brilliant colouring.

Of novelties a very beautiful apricot-yellow, double-flowered variety named *Mr. Danbur Wood*, was recommended an Award of Merit. Some of the best scarlet doubles were: *Mr. Jas. Portbury*, *Billiaot*, *Mrs. Arthur Pitts*, *Mr. John Fowler*. *Maid of Kent* is a marvellously pretty pink variety; *Princess of Wales*, a white flower tinted and edged pink, one of the prettiest doubles; *Mrs. S. Pope* (a capital white); *Jubilee Beauty* (scarlet with white centre), *Mias Jennie Pell* is a capital scarlet double of the very brightest tint; *Her Majesty* (white), *Miss Fanny Joseph* (pink), *Beauty of Bosley* (coral colour), *Beauty of Belgrove* (pink), and *Duchess of Devonshire*. All of the above are good doubles, and these were much more numerous in the group than were singles.

Messrs. JNO. LAING & SONS' *Begonias* from the Forest Hill Nurseries were grouped upon the central stage in Tent No. 3. Between a group of *Gloxinias* and the fine Ferns from Mr. H. B. MAY, the brightly-coloured flowers made a grand show. The single-flowered and double-flowered sorts were grouped by themselves, and each was good. Of singles, *Miss Alice de Rothschild*, yellow; *Mrs. Davis*, richer, and bronzy-yellow; *Mrs. J. Pierrepont Morgan*, primrose-yellow; *Lord Chas. Beresford* scarlet, were capital. Of doubles, *Lady Tweedmouth*, *Comtesse of Dartmouth* white; *Lady Powerscourt*, pink; *Duke of Fife*, *Lady Gifford*, and *Lady Chas. Beresford* were equally commendable.

FERNS.

The exhibits of Ferns were of more interest than usual, but the space available for the display of such plants is unfortunately too limited for very large specimens, or for noble tree-ferns, that have so decided an effect in a large exhibition.

Messrs. W. & J. BIRKENHEAD, Fern Nurseries, Sale, near Manchester, as usual made an exhibit of very choice varieties. They clothed the end of the central table in No. 3 tent. In the first place, a glass-case of considerable size provided a suitable protection for a collection of filmy Ferns, and amongst these we noticed pretty specimens of *Todea superba*, *Hymenophyllum crispitum*, *H. Fosterianum*, *Trichomanes angustatum*, *T. maximum umbrosum*, *T. radicans Andrewsii*, *T. radicans cambricum*, *T. venosum*, *T. Colnsoi*, &c. Amongst the less tender species, we noticed *Davallia filijensis elegans*, *D. f. major*, *D. Mooreana*, a very pretty plant, *D. tenuifolia stricta*, with beautiful feathery, but erect fronds, and *D. tenuifolia Veitchiana*, *Gymnogramma Dobraydenses*, a rather loose habit, gold-powdered variety; *G. Lauchiana*, *G. peruviana argyrophylla*, *G. Alstoni*, and *G. schizophylla gloriosa*, an exceedingly pretty but green *Gymnogramma*. Of *Adiantums* there were *A. macrophyllum*, *A. Lawsonianum*, *A. Collisii*, and *A. rubellum*, with prettily tinted fronds, and one of the best gems in the group. The *Athyriums* were represented by a few fairly-sized plants: *A. f. plumosum elegans*, *A. f. plumosum superbum grandiceps*, *Polystichum ang.*, in very numerous varieties, *Polypodium*, *Pteris*, *Selaginellas*, and other genera were all included in variety; *Polystichum angulare divisilobum plumosissimum*, fairly described by this rather long name, was one of the most beautiful plants in this exhibit.

A small group of plants of *Lastrea fragrans*, surrounded with cork, attracted attention as the violet-scented Fern, but this feature was rather difficult of appreciation.

Mr. H. B. MAY, of Dyson's Lane Nurseries, Upper Edmonston, had the most imposing group of Ferns in the exhibition, the plants being generally of considerable size, and inclusive of a large number of novelties. The gem of these—indeed, one of the most remarkable novelties at the Temple other than those previously seen at Ghent, and which was awarded a First-class Certificate, was *Phlebodium glaucum Mayii*, fig. 121 of the Supplement to our present issue. As

will be seen from the photograph, the outline of the fronds is altogether different than anything previously seen in varieties of this group. It would seem to come nearest to *P. glaucum*, and, in fact, the plant appeared amongst seedlings of *glaucum*, but the margins of every frond are serrated, notched irregularly, and frilled to such an extent that in the place of the somewhat flat appearance of the type, the plant is a beautiful picture of wavy, broken outline. Then the veining of the fronds is peculiarly distinct, for in addition to the primary veins nearly all the subsidiary ones are distinctly visible. Two primary veins run parallel with the mid-rib of the leaf, and very fine ones from these in a kind of net-fashion from those to the margin of the frond. The veins are purple or violet in tint, and the fronds generally possess a silvery metallic lustre, which is one of the charms of the plant. The plant, which was shown under a glass case, is hardly six months old, and being a good grower, the variety will probably exceed in height and vigour that of *P. glaucum*. It must be remembered that botanically all the *Phlebodiums* are now included under *Polypodium*. *Adiantum Hemslayanum* (fig. 124) is another plant shown by Mr. H. B. MAY, and requires little description here, as its characteristics are well shown in the photograph. The peculiar shape of the pinnae give the variety an unusual light and "starry" appearance. It was distinguished by a First-class Certificate of the Royal Horticultural Society in 1894, but it was found exceedingly difficult to increase the stock. *Davallia filijensis effusa* (fig. 118) is a robust growing variety of this species. It is more spreading than the type, and is expected to produce fronds 5 feet length.

Other novelties in Mr. MAY's collection included *Pteris cretica Summerii*, a very much crested cretica, being an improvement upon *Wimsettii* exhibited a month ago at the Drill Hall when an Award of Merit was obtained; *Gymnogramma chrysophylla grandiceps superbum*, being a real superb improvement upon *G. c. grandiceps*, and awarded First-class Certificate at the Fern conference at Chiswick. It is still a novelty, however, owing to the failure for some time of the efforts to propagate the variety. *Pteris serrulata gracilis multiiceps*, a very slender habit plant, but heavily crested.

A collection of Ferns from Messrs. J. HILL & SON, Lower Edmonston, staged in No. 4 Tent, included a considerable variety and well-cultivated specimens. *Davallia filijensis plumosa*, *Asplenium nidus Avis*, *A. caudatum*, *Adiantum formosum*, *A. gracillimum*, and *Pteris tremula Smithiana* in large specimens, some of which were suspended, helped to give an effective background to the exhibit. Toward the face were many of the choicer forms, and some of these were grouped together in baskets, of which *Adiantums scutum roseum*, *A. macrophyllum*, and other prettily-tinted varieties were noticeable. For the rest, many of the popular genera were represented in attractive forms.

MISCELLANEOUS EXHIBITS.

AMARYLLIS.

These were sparingly represented, and were it not that Messrs. KELWAY & SON, of the Langport Nurseries, had brought some cut specimens, with which they formed two panels to their stand of cut-flowers, they would not have been represented. Messrs. KELWAY & SON claimed to have produced a race of harder forms of *Amaryllis* than is usually grown, and thus some lateness in flowering may be accounted for.

CALCEOLARIA.

were numerous, and generally fresh and good, dwarf in growth, and profuse in bloom. Messrs. J. JAMES & SON, Woodside, Farnham Common, Bucks, staged a collection of about fifty plants remarkable for their dwarf growth, the size of their blooms, and their brilliant colours. Collections of *Calceolarias*, as a rule, show a preponderance of yellow in their colouring, and there is a general tendency to hark back to it. But few yellow tints were in the Woodside collection; some with buff and salmon grounds were handsomely maculated, and there was to be seen a white variety. The size to which the individual blooms has been brought is shown by the fact that one of the blossoms measured 2½ inches in length. This collection was set up with a line of *Palms* at the back, with dwarf Ferns interspersed, and forming a front edging.

Messrs. H. CANNELL & SONS had a collection of two dozen plants, similarly mingled with *Palms* and Ferns. The plants forming this collection were of dwarf growth, and a little freer in habit than the preceding collection; some of the crimson shades were very bright, and one of a crimson-maroon shade was very fine. The front line was formed of *Echeveria farinosa*, and small Ferns.

Messrs. JAMES CARTER & Co., seed merchants, Holborn, had a collection of some 150 plants, filling a considerable space of tabling, dwarf in growth, varied in colour, and the blooms of fine quality. The tall *Calceolarias* of thirty or forty years ago appear to have disappeared from cultivation.

GLOXINIAS.

were very bright and effective. A collection from Messrs. H. CANNELL & SONS, set up in the same way as their *Calceolarias*, was smaller in the flower than is usually seen but they represented a varied strain, remarkable for their quality of bloom. As it appears customary still to name *Gloxinias*, a few of the leading varieties in this collection were *White Queen*, *Prince of Wales*, *pale crimson*; *Princess of Wales*, *pale bright crimson*, *maigned white*; *Duchess of York*, white, with a narrow waved line of pale rose; and *Nestor*, dark purple.

Messrs. J. LAING & SONS, Stanstead Nurseries, Forest Hill, had a collection of some thirty plants, finely bloomed, varied in colour, with large bold flowers.

Messrs. J. PEED & SONS, nurserymen, Lower Norwood had a collection of some 100 plants admirably set up, and which formed a commanding feature in the tent; some of the varieties were particularly fine and distinct, such as Beacon, Duke of York, Exquisite, charmingly maculated; John Peed, Duchess of York, Minnie Peed, Princess of Wales, a very distinct variety, densely spotted with dots of purple, and edged with white; Mrs. W. Weaver, &c.

Messrs. A. W. YOUNG & Co., nurserymen, Stevenage, staged a small collection with other things.

A large and striking collection of some 100 plants was staged by Messrs. JAMES VEITCH & SONS, which included many good varieties, chief among them Monarch, La Belle, white; Irene, Achille, Oberon, Cicely, Seraph, Argus, Electra, Virginal, Modesty, Mais, very bright; and Columbus.

The ANGLO-CONTINENTAL GUANO Co., had a small table of Gloxinias, presumably grown with their manures

CARNATIONS

were in good force, and were contributed by several exhibitors.

Mr. C. TURNER, Slough, had a panel of well-flowered plants

of Wales, plants probably three years old, grandly grown and bloomed.

Messrs. DICKSONS, LTD., Chester, had a group of the yellow Carnation, Duchess Consuelo which was raised at Blenheim, and may be regarded as a yellow Malmaison, and a fine addition to the section.

Mr. FREDERICK PERKINS, Regent Street, Leamington, had a number of plants of a pale yellow Carnation named Primrose Queen, nicely arranged with Ferns. It is a free blooming variety of good quality.

PELARGONIUMS

were sparingly shown: Mr. C. TURNER had a few large specimens of show varieties freely bloomed, such as Joe, Mystery, Prince Leopold, Alice, a pretty light variety, Spotted Beuty, Maid of Honour, St. Blaise, brilliant crimson, Magpie, Lady Isabel, of a mauve-pink tint, distinct; Edward Perkins, and Marguerite, a charming pale flower; also freely-bloomed specimens of the following fancies, The Shah, Iona, and Princess Teck.

PEONIES

were not shown in their usual good character, the forms of *P. arborea* formed the great bulk of them, and they had been forced into bloom.

Messrs. KELWAY & SON, Langport, were the only exhibitors

varieties of *Orchis*, *Primula Sieboldi* in variety, a deep coloured one named *Tragedia* being very striking; *Eremurus himalaica*, *Geums* in variety, *Heuchera sanguinea*, *Paeonies*, *Tulips* in variety, *Iris* in great variety, *Oriental Poppies*, *Adonis pyrenaica*, *Anemones*, *Lilium Harrisii*, *Early Gladioli* &c.

Mr. M. PRITCHARD, nurseryman, Christchurch, had a nice select collection, consisting of *Geums* in variety, *Camassia esculenta*, *Trollius* in variety, *Aquilegia*, *Saxifraga granulata* fl.-pl., a plant which deserves to be much more grown; *Campanula Balcanica*, *Iris* in variety, *Eremurus Elwesianus*, *Delphinium nudicaule*, *Trillium stylosum*, *Cytisus purpureus* var. *incarnata*, *Primula japonica*, &c.

Mr. T. S. WARE, Hale Farm Nurseries, Tottenham, had an interesting collection which included *Liliums*, *Iris* in variety, *Iberis gibraltarica*, *Geums* in variety, *Tulips*, *Lupinus polyphyllus*, *Delphinium nudicaule*, *Anemone narcissiflora*, *Cypripedium calceolus*, *Heuchera sanguinea*, *Eremurus Elwesianus*, a very fine spike (Award of Merit), *Spiraea chinensis*, which again failed to obtain an award; *Ranunculus pyrenaica*, *Trillium grandiflorum*, *Darlingtonia grandiflora*, &c.

Mr. AMOS PERRY, nurseryman, Winchmore Hill, also had a select collection, which comprised a pleasing variegated form of *Cheiranthus alpinus*, *Trollius*, *Orange Globe*, very fine; various forms of *Tulips*, *Camassia Leichtlini*, *Campanulas*, *Aquilegia Stuarti*, *Arenaria grandiflora*; a fine form of *Papaver orientale*, the large, pale, orange-red flowers flaked with a pale creamy colour; *Polemonium Richardsoni*, &c.

Messrs. A. W. YOUNG & Co. had a group comprising *Lilics*, *Aquilegia*, *Iris*, *Papaver nudicaule*, *Phlox subulata*, *Lilium narbonneense*, *Trollius*, *Tulips*, &c.

An extremely interesting collection was staged by Messrs. R. WALLACE & Co., Colchester, which formed a big exhibition of itself, as it comprised many subjects of which they were the sole exhibitors, such as *Lilium Hansonii*, *Calochorti* in variety, which included some beautiful species and varieties; *Ixias* and *Sparaxis* in variety, varieties of *Lilium Thunbergianum* and *umbellatum*, *Incarvillea Delevayi*, a batch of *Watsonia O'Brieni*, *Lilium ruccellum*, fig. 128, p. 335, a distinct new species elsewhere described; hardy *Cypripediums* in variety, *Ornithogalum arabicum*, *Tritonias*, various forms of new *Iris*, &c.

Messrs. JACKMAN & SON, Woking, had a small collection of hardy flowers, including *Paeonies*, *Trollius*, *Pyrethrums*, *Iceland Poppies*, pans of *Cheiranthus alpinus* and *Morshii*; *Spiraea astilboidea*, *Lychnis Haageana*, *Thermopsis montana*, &c.

Messrs. CARTER & Co. had late *Tulips* in variety, *Anemones*, *Iris*, early *Gladioli*, *Narcissus*, the deep yellow *Ranunculus Seraphique*, &c.

Messrs. CHEAL & SONS, Lowfield Nurseries, Crawley, set up a bank of hardy flowers, which included boards and sprays of *Violas*, the very distinct ones being particularly noticeable: *Lupinus polyphyllus* in variety; *Pyrethrums*, *Rhododendrons*, *Oriental Poppies*, &c.; and a design of a bank in a garden, planted with choice alpine, &c., a very pleasing feature.

PANSIES AND VIOLAS.

These came from several exhibitors: Messrs. ISAAC HOUSE & SON, florists, Westbury-on-Trym, had a stand of bunches of fancy Pansies and *Violas*, boards of the former, some of them very fine, and baskets of *Violas* in small pots, chief among them *Prince of Wales*, yellow; *Stophill Gem*, maroon and crimson, bordered with white; *White Empress*, very pure; A. J. Rowberry, &c.

Mr. WILLIAM SYDENHAM, florist, Tamworth, had a collection of sprays of *Violas*, including *Mrs. Craze*, purple maroon, with white top petals; *Masterpiece*, William Tell, and *Bianche*, white; *Pembroke*, yellow; *Alexander*, pale silvery-claret; and also a series of devices worked with *Viola* blooms, which did not tend to present the *Viola* to view as a decorative agent.

Messrs. F. MILLER & Co., Florists, Fulham Road, S.W., also had a collection of bright fancy Pansies. *Petunias* were shown by them, a good bedding strain; and Messrs. CARTER & Co., also had groups of these plants in their collection.

ALRICULAS,

in the form of some new alpine varieties, came from Mr. J. DOUGLAS, Great Bookham, Surrey; chief among them were several plants of *Dean Hole*, a very fine and striking variety; *Delphi* was the best of the new alpine varieties submitted for Certificates. A new green-edged variety, named *Tric Frog*, appeared to be, as shown, inferior to *Mrs. Henwood* or *Abbe Liszt*.

Mr. R. DEAN, Ranelagh Road, Ealing, had double-flowered *Auricula*, *Snowdrop*, a white variety carrying a large truss of white flowers, and quite unique in its way (Award of Merit).

SWEET PEAS.

A collection of some fifty bunches of Sweet Peas came from Mr. F. G. FOSTER, Brockhampton Nurseries, Havant, which had been forced into bloom; they formed a pleasing feature.

FLORISTS' TULIPS.

A collection of these was staged by Mr. GEO. EDOM, Walton-on-Hill, Essex. The flowers, which were of good size, comprised some bright breeders; such as *bizarrae* as Samuel Barlow and Lord F. Cavendish; bybloemens *Adonis*, *Duchess of Sutherland*, and *Mrs. Mille*; roses, *Mrs. Lea*, *Mrs. Collier*, and *Annie McGregor*.



FIG. 127.—GROUP OF FRUIT TREES IN POTS.

(Grown by Mr. J. Hudson, Gardener, Gunnersbury House, Acton. See Report of Temple Show.

on either side of his *Roses*, together about 100 specimens, chief among them *Queen of Fancies*, an improved *Stadtrath Bail*, with more colouring in it, which richly deserved the Awards of Merit the Floral Committee refused to give it; *Juliana*, a rose edged *Picotée*; *The Gift*, *Little John*, *Sir Guy*, *May Queen*, *Primrose League*, *Snowdrop*, *Helios*, and *Knight Errant*.

Messrs. W. CUTBUSH & SON, Highgate Nurseries, had a large corner group of flowering-plants in the large tent, the ground-work *Malmaison Carnations*; among them were two new varieties of decided promise, viz., *President McKinley*, buff, with a slight salmon centre, quite distinct in colour, and *Madame Adelina Patti*, pink, deepening to salmon, with faint rose stripes on some of the petals; the flowers were large, full, and of fine shape. In addition, they had two groups of *Carnations*, chief among them *Queen of the Buffs*, distinct in tint, and fine in petal; *Miss Andrey Campbell*, yellow; *Waterwitch*, *The Gift*, *Duchess of Fife*, delicate pink, very pleasing; *La Villette*, pale rose flushed with delicate violet; *Germania*, very fine; and *Princess May*, bright rosy scarlet.

From Mr. Jennings, gr. to LEOPOLD DE ROTHSCHILD, Esq., Ascott, Leighton Buzzard, came a group of some sixty plants of a rose-coloured variety of *Malmaison*, known as *Princess*

of a collection in pots, chief among them *Agnes Mary Kelway*, cream and pink; *Cassius*, pale rose; *Lady Bedford*, pale pink; *Duchess of Teck*; *Diadem*, single rose, &c. And in a collection of cut flowers were *Julius Caesar*, rich crimson, very fine (Award of Merit); *The Bride*, white; *Henry Irving*, chestnut-crimson, very fine in colour (Award of Merit); *Cicero*, pale rosy-pink; *Jean de Resky*, a very fine white, broad in the petal, and quite pure (Award of Merit); and a number of varieties unnamed.

Captain TOARENS, Hayes, Kent, had a bloom each of four varieties, imported from Japan, all of a decidedly promising character.

HARDY PLANTS,

herbaceous and otherwise, were as usual shown in quantities, and some of them might have been left out with advantage, for only the best things should find a place in such an exhibition.

Messrs. BARR & SON, King Street, Covent Garden, had a large and varied collection. There were seen *Delphinium nudicaule*, *Cyclamen repandum*, hardy *Ladies' Slippers* in variety, *Cytisus* in variety, including bushes of *Andraeda* and *C. hispanica pumila*, *Trollius* in variety, *Orange Globe* being especially noticeable; *Gentiana verna*, *Edigeon Roylei*, *Primula japonica*, varieties of *Phlox subulata*,

ORCHIDS.

A grand display of Orchids was staged in the great marquee, and in the long tent adjoining.

As usual, the President of the Society, Sir TAVERN LAWRENCE, Bart., filled the place of honour as the largest and best exhibitor, the space with a frontage of twenty-five feet in the entrance of the tent occupied by his group, being in itself well worth a journey to see. In the staging of the group to Mr. H. WHITE, his orchid grower had displayed great skill, and brought out well the main features of the plants staged. The centre was occupied by a fine example of *Cymbidium Lowianum*, and arranged along the back and in the body of the group was a very fine and varied selection of varieties of *Laelia purpurata*, *Cattleya Mossiae*, *C. Mendeli*, *C. Lawrenceana*, *Miltouia vexillaria*, some noble *Odontoglossum crispum*, and other showy species of albinos. Several of the species were represented in the group, and prominent among them were *Cattleya Mossiae* Wagaeri, *C. Skinneri* alba, *Sobralia macrantha* alba, *Dendrobium Parishi* albus, and *Epidendrum* *x* *elegantula* *leucocanthum*. Gracefully arching over the group were the elegant sprays of the slender-stemmed *Epidendrum*, *Dendrobiums*, *Oncidium*, &c., remarkably effective being *Epidendrum Rindii*, *E. x* *O'Brienianum*, *E. x* *elegantulum*, *E. Wallisii*, the dark scarlet *E. Schomburgkii*, the purple-lipped *E. Mooreum*, *Schomburgkia tibicinis*, and the curious *Dendrobium O'Brienianum* striatum with its pendulous racemes of whitish flowers striped with purple. Among other good things noted were a fine specimen of *Epiphrontis x* *Veitchii*, one of the most brilliant of hybrids, a good example of *Cymbidium tigrinum*, a fine specimen of *Calax jugosum*, *Cattleya x* *Parthenia*, floriferous plants of *Masdevallia rosea* *M. ignea*, and other *Masdevallias*; and among the many fine *Cypripediums*, no less remarkable for their handsome and healthy foliage than for their beautiful flowers, the noble *C. x* *Olenus* Burford variety, the largest and most richly coloured of its class with a fine twin flowered inflorescence. Raised on a stage in the centre of the group was a batch of the rare and pretty species for which the great Burford collection is noted, and among them were the bright scarlet-crimson *Ranthera inschootiana*; the blue *Dendrobium Victoria Regia*, the pale blue *Aganisia corulea*, the dwarf white and violet *Epidendrum Endresii*, and its hybrid *E. x* *Endresio-Wallisii*; the curious little *Polystachya bulbophyllodes*, a very frail plant, but notwithstanding that, like so many other little gems, it has been retained in vigour for many years at Burford.

Among the *Masdevallias* were the pretty *M. Arminii*, *M. pachyura*, *M. caudata* *xanthocorys*, and *M. O'Brieniana*; and also represented were the carmine-red *Habenaria rhodochila*, the orange-scarlet *Saccolabium miniatum*, and a fine pan of *Macodes petola*, and *Dendrobium Hughii*.

The next group, both in succession and importance, was that from Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr. Mr. W. H. Young), and it also was well staged. In it as in most of the other large groups *Laelia purpurata*, and *Cymbidium Lowianum*, on account of their size, figured conspicuously in the background, the varieties shown of each being of the best. *Cattleya Mossiae*, *C. Mendeli*, *C. Skinneri*, *C. Skinneri* alba, *C. intermedia* *Parthenia*, and *C. Lawrenceana*, were very showy, and in the centre were the rare *Cypripedium callosum* *Sandere*, *C. bellatulum* *albus*, *Miltouia vexillaria* *Chelseiensis* with fine purple marking in the centre; and among the *Odontoglossums*, some fine *O. crispum*, *O. citrosum* *punctatissimum*, &c.; other remarkable plants were a very fine specimen of *Cypripedium candatum*, *Disa Veitchii*, *Epidendrum hastatum*, the pigmy *Eria extensoria* with several sprays of its neat little flowers, *Cypripedium x* *Kerechovianum*, *W. H. Young* (*barbatum* var. *x* *Curtisii*), and *Dendrobium Victoria Regia*.

The Rt. Hon. EARL PERCY, St. John House, Brentford (gr. Mr. G. Wythes), staged a very fine group in which the best old favourite Orchids were finely shown. Among the many fine specimens of *Cattleya Mossiae*, *Laelia purpurata*, *Cymbidium Lowianum*, &c., were well-grown examples of *Vanda teres*, a fine *Cologney Dayana*, good specimens of *Oncidium Marshallianum*, *Thunia Marshalliana*, *Dendrobium thysiflorum*, and *D. Gibsoni*; good *Odontoglossum crispum*, *O. Pescatorei*, *O. triumphans*, *Miltouia vexillaria*, and representatives of many of the other showy species of the season.

Next came a pretty little group of *Cattleyas*, *Odontoglossums*, *Laelias*, &c., staged by MALCOLM S. COOK, Esq., Kingston Hill; and then followed a very fine assortment staged by Mr. JAS. CYPHER, of Cheltenham, with his usual skill. In it the varieties of *Laelia purpurata* were very fine, and varying from the white-petalled to the very dark-coloured forms. Here and there above the rest of the plants were elevated some finely-flowered *Cattleya citrina*, and throughout the group were elegant plants of *Oncidium Marshallianum*, good varieties of *Odontoglossum crispum*, a finely spotted *O. nebulosum*, *Cattleya Lawrenceana*, *C. Schilleriana*, *C. Skinneri* and other *Cattleyas*, good *Dendrobium Dearei*, *Epidendrum x* *O'Brienianum*, *Mormodes citrinum*, *Masdevallia rosea*, *M. Schlimii*, *Anguloc. Clowesii*, *Oncidium olivaceum* *Lawrenceanum*, some elegant *Thunias*, &c.

Messrs. F. SANDER & Co., St. Albans, occupied both sides of the end of the central stage with a very remarkable collection replete with good things. In it the *Odontoglossums* were very fine, and especially the varieties of *O. luteo-purpureum*; the varieties of *O. crispum* too were remarkable by their large and finely-formed flowers. Among the more remarkable of the exhibits in this group were *Cypripedium callosum*, *Sandere*, *C. bellatulum* *albus*, *C. x* *macrochilum* *gigantum*, *C. Sanderianum*, *C. x* *conco-bellatulum*, *C. x* *Doncasteri*, *anum inversum*. Among the *Odontoglossums* were several very fine blotched forms of distinct features, one of them

being a pretty variety of *O. Adriane*. Other specially noteworthy plants in this group were a fine *Oncidium sarcodes* with many branched spike; *Cattleya Mossiae* *Victoria*, with yellow lip flecked with rose colour; some good *C. M. Wagneri*, and *C. M. Reineckiana*; *Cattleya Skinneri* alba, *Masdevallia Veitchii* *grandiflora*; *Sobralia macrantha* alba, grand specimens of *Oncidium ampliatum* *majus*, &c.

H. S. LEON, Esq., Bletchley Park, Bletchley (gr. Mr. A. Hislop), followed with a very bright and effective group containing many good and rare things, the *Cattleya Skinneri*, *C. Schroderae*, *C. Lawrenceana*, *C. Mendeli* and *C. Mossiae*, being specially fine. In the centre of the group, a specimen of *Cattleya Luddemanniana* *Ernsti*, with gigantic rose and purple flowers, was a striking object; and in the group the scarlet *Epidendrum radicans*, some fine *Odontoglossums*, *Calanthe veratrifolia*, *Vanda tricolor*, *V. suavis*, var. *teres*, *Dendrobium nobile* *Bletchley Park* variety; *D. n. nobiliss.*, *D. infundibulum*, and some excellent *Oncidium concolor*, of which the large-flowered *O. c. superbiens* was the best, were attractive features.

MESSRS. CHARLESWORTH & Co., Heaton, Bradford, staged not only one of the best and most extensive collections, but also one of the most interesting, by reason of the many hybrid novelties it contained. So numerous were the entries to go before the Orchid Committee, that it is only possible to touch on a portion of the good things shown. The result in Awards will be seen in the appended list. *Cattleya x* *Fernand Denis* (*Aeklandiae x* *Warszewiczii*) was one of the best things shown, the habit of the plant being like a gigantic *C. Aeklandiae*, the large waxlike flower of a bluish-white, with rose-coloured freckling on the sepals, the broad wavy front lobe of the lip being rose crimson—a very distinct hybrid.

Another superb new hybrid was *Laelia-Cattleya x* *Admiral Dewey* (*C. Wanneri* *formosa x* *L. elegans*), a large flower with pale rose sepals and petals, the showy front of the lip being rose-purple, and both these secured First-Class Awards.

Another interesting hybrid was *Laelia-Cattleya x* *Schilleriana*, home-raised between *L. purpurata* and *C. intermedia*, and which proves another conjectured parentage adjudged to the imported plant; and very pretty were *Laelia x* *cinnabrosa* (*cinnabrosa x* *tenebrosa*), *Epi-Laelia x* *Charlesworthi* (*L. cinnabrosa x* *E. radicans*); *Laelia-Cattleya x* *intermedia-flava* "Golden Queen," with bright yellow segments; *L.-C. x* *radiata* (*L. purpurata x* *C. dolosa*), *Cattleya x* *Breiteana* (*Loddigesii x* *superba*); also *Odontoglossum cordatum* "Charlesworth's variety," a very dark-coloured form; *O. scepterum* *leucoglossum*, *O. Halli*, "Charlesworth's variety," *O. crispum* *Jeanette*, and other very handsome forms of *O. crispum*; *O. nebulosum* *punctatissimum*; *Cypripedium x* *Schofieldianum* (*bellatulum x* *hirsutissimum*), &c.; and among other good things in the group were three plants of *Cattleya Mossiae* *Reineckiana*; a good form of *Odontoglossum* *Uro-Skinneri*, *Masdevallia Veitchiana*, *Cochlidium Noezliana*, *Cymbidium tigrinum*, &c.

Messrs. B. S. WILLIAMS & SON, Victoria and Paradise Nurseries, Upper Holloway, staged a fine group, in the back of which were good specimens of *Vanda tricolor* and *V. suavis*, for which the firm is noted. In the group also were exceptionally good varieties of the showy *Odontoglossums*; the pretty hybrid *Laelia-Cattleya x* *intermedia-flava*; some fine *Laelia purpurata*, *Agides Houlettianum*, *Laelia x* *Latona*, *Calanthe Williamsii*, *Thunia Bensoniae*, *Pescatorea Lehmanni*, &c.

W. THOMPSON, Esq., Walton Grange, Stone, Staffordshire (gr. Mr. W. Stevens), staged a charming little group of grand varieties of *Odontoglossums*, among which were *O. crispum* *Lily*, rose-tinted and profusely spotted with red, especially on the petals; *O. c. Capartianum*, a fine flower with conspicuous spotting; *O. c. Thompsonianum*, one of the very finest of blotched *crispums*; *O. c. Dorothy*, with large purplish markings; *O. Wilckeanum* *grande*; a fine *O. tripudians*; a beautifully spotted hybrid of the *O. Rochfordianum* class; *O. x* *excellens* var., a large sparsely-spotted yellow-form; and other fine things marvellously well-grown.

LUDWIG MOND, Esq., showed a neat group of *Odontoglossums*, *Cattleyas*, &c.; Messrs. HUGH LOW & Co., Bush Hill Nurseries, Enfield, staged a grand assortment, in which the forms of *Cattleya Mendeli* were superb, two of them, viz., *C. M. Oakes Ames*, a noble flower with large bluish-white flowers bearing a showy crimson feather on the petals, and glowing ruby-crimson lip; and *C. M. Mrs. E. V. Low*, a charming flower of superb form and delicate tint, were among the best and most distinct of the species in the show. Also very beautiful in Messrs. Low's group were *Odontoglossum crispum* *Memoir* *W. E. Gladstone*, a fine rose-tinted and heavily-blotched flower; *O. c. Dieudonné*, a neat pure white, with pretty purplish spots; *Dendrobium Dalhousieanum* *salmonum*, a remarkable variety, in which the dark blotches usually seen on the lip were almost obliterated. *Laelia-Cattleya x* *Schilleriana* *Lowiae*, a large richly-coloured flower; *Cattleya Mossiae* *Wagneri*, and *C. M. Reineckiana*, the singular *Bulbophyllum Cliftonense*, *Oncidium tetraepis*, &c.

In the adjoining long tent Messrs. LINDEN, Horticulture Internationale, Park Leopold, Brussels, staged a grand group of *Odontoglossums*, running a considerable distance up the side-stage, and affording an admirable object-lesson, illustrating the extraordinary variety obtainable from a very few species, for notwithstanding the fact that but few species were represented, there were no two plants exactly alike, the form or the colour, or the disposal of the markings, differing widely in each from any other. Among the more striking were *Odontoglossum x* *Adriane* *venustum*, a crisped and profusely-spotted

O. Hunnewellianum hybrid; *O. Pescatorei* *bellatulum*, with remarkable triangular purple markings; *O. x* *circio-Halli*, yellow, spotted brown; *O. Hunnewellianum* *superbum*, a very pretty flower; *O. crispum* *jasideum*, a showy rose-tinted bloom; *O. x* *Wilckeanum* *rufulum*, with reddish spots; *O. W. brunneum*, with chestnut-brown blotches; *O. crispum* *rubellum*, tinged and spotted purple of the Franz Masereel class; *O. vexillarium* *Moortbeekense* with very large flowers. *O. polyanthum* *expansum*, large and richly coloured; *O. crispum* *zebrinum*, barred with purplish-brown; *Cattleya Mossiae* *Marguerites* and at one end of the group a grand batch of varieties of *Cypripedium Lawrenceanum*.

M. JULIEN HYE-LE SEN, Coupure, Ghent, also represented Belgium with a small group of good things, embracing *Miltouia x* *Bleumiro* *ros*, a noble, pink-tinted form. *Odontoglossum luteo-purpureum* *Vuytstekeanum*, with flowers of two shades of yellow; *O. cordato-crispum*, *O. scepterum*, *Cypripedium x* *Leysenianum*, *Laelia-Cattleya* (*C. Lawrenceana x* *L. cinnabrosa*) of the *L.-C. x* *Highburyensis* class, with curiously rose-flaked flowers.

M. A. MADOUX, Anderghem, Brussels, also showed some good things, remarkable being the beautiful *Odontoglossum* (*Adriane*) *x* *Charlesianum*, with cream-white flowers profusely spotted with brown; *O. crispum* *Trianae*, with a purple blotch in the sepals; *Laelia Latona* *superba*, very brilliantly coloured, and other showy kinds.

M. CHAS. VUYLSTEKE, Loochristy, Ghent, showed *Odontoglossum x* *crispum* *Harryanum* (*crispum x* *Harryanum*), a very interesting hybrid with the general features of *O. Harryanum*, but paler in tint and modified in form, as might be expected. Its nearest affinity among imported plants is *O. Wattianum*, which may be an analogous natural hybrid.

MESSRS. JAS. BACKHOUSE & SONS, York, showed various Orchids, their forms of *Miltouia vexillaria* being of very fine colour, that named *Empress Victoria Augusta* being of a bright rose-crimson.

W. P. BURKINSHAW, Esq., The West Hill, Hesse, near Hull (gr. Mr. Barker), sent *Cattleya Mendeli* *Amelia*, a very handsome light form; *C. Mossiae* *Barkeri*, like a lavender-tinted *C. M. Reineckiana*; and a fine form of *Cypripedium Rothschildianum*.

ELIJAH ASHWORTH, Esq., Harefield Hall, Wiltshire, Cheshire (gr. Mr. Holbrook), showed a fine example of the showy *Cirriophetulum Colletti*, with four spikes.

WALTER COSE, Esq., Dulcote, Tunbridge Wells (gr. Mr. J. Howes), showed a grand specimen of *Epidendrum prismatocarpum*, with nine spikes.

MESSRS. W. L. LEWIS & Co., Southgate, showed a very fine group, in which were excellent forms of *Odontoglossum crispum*, and other showy *Odontoglossums*; fine varieties of *Laelia purpurata*, *Cymbidium Lowianum*, *Cattleya Mendeli*, *C. Mossiae*, &c., *Cypripedium Mastersianum*, and other good species; *Oncidium varicosum*, *O. spilopterum*, *O. Marshallianum*; a prettily marked variety of *O. hastatum*, &c.

H. SNAW, Esq., Heathfield, Stockport (gr. Mr. J. Cliffe), showed *Miltouia vexillaria*, *Heathfield* variety, with fine large flowers; and the dwarf *Dendrobium*, known in gardens as *D. pulchellum*.

R. S. BOND, Esq., Surbiton (gr. Mr. Peard), showed a yellow spotted *Odontoglossum* *Wilckeanum*.

ROSES.

Just as prominent a feature of the large tent, as the Orchids are known to be, are the larger collections of Roses, the exhibits of both Messrs. WILLIAM PAUL and of Messrs. PAUL & SON, also of Mr. CHAS. TURNER, being again in this marquee. We never see finer Roses in pots than we admire at the Temple, and probably no better show of them occurs in Europe.

MESSRS. WILLIAM PAUL & SON, Waltham Cross, Herts, had a magnificent group. The ground was furnished with dwarf, well-flowered plants, and above these the fine beads of the standards, caused an appreciable effect. The face was made beautiful with boxes of cut blooms in brilliant colours, and others were grouped in ornamental baskets upon three-legged pedestals, that would make fine stands for flower-pots. Of varieties staged a good number were of Messrs. PAUL's own raising. A new one, named *Aurora*, which was granted an Award of Merit on this occasion, deserves a word of commendation. It has the appearance of being a capital deer, has warm, deep, salmon pink coloured bloom of large size, and more than this it retains the scent we look for in Roses to a much greater degree than is the case in many of the best modern exhibition varieties.

Others that are good at all times are *Clio*, *Medea*, *Anna Ollivier*, *Empress Alexandra* of Russia, *Mrs. Jno. Laing*, *Crimson Queen*, *Coranna*, &c.

Mr. CHAS. TURNER as usual, furnished the end of the large tent with his *Roses* and *Polargoniums*, and his *Roses*, on this occasion formed an exhibit of loveliness any grower might be proud of. Last year Mr. Turner gave an importance to the Rambler Rose in his group; and as dwarfs or as trained plants in the form of an arch, their effect was equally gorgeous. The centre of the group was taken by an uncommonly large and handsome plant of *June*; and regarding the rest of the varieties, it is not needful to particularise.

The group from Messrs. PAUL & SON, Cheshunt, was placed in a corner of the same tent, and the standards, half-standards, and dwarf plants furnished it well. Some of the varieties that one picked out at once as the most effective were *Caroline Testout*, *Malame de Watteville*, *Ulrich Brunner*, *Elsie Engler*, *June*, *Madame A. Chatenay*, and *Haileybury*, a showy crimson Rose. Then, there were several plants of the seedling *Polyantha* Rose named *Psyche*, which has already been described and figured in these columns.

and which may be recommended as a novelty of much value. Also a new Polyantha Rose Diana, a seedling from Turner's Crimson Rambler, producing small very double white tinted blossoms.

Mr. W. RUMSEY's collection of Roses at the entrance to Tent No. 4 included standard and other plants in pots, and ten or more boxes filled with cut blooms, considerable prominence being given to the variety Mrs. Rumsey, a new bedding or garden Rose of much vigour, and pretty warm pink or rose-coloured blossoms.

Messrs. FRANK CANT & Co., Braiswick Nurseries, Colchester, had a group of Roses in pots in Tent No. 4, the plants facing both promenade. Many of the plants were well flowered, but we think we have seen this successful Rose-cultivator exhibit in better form. The season is a little early at present, and ere long the out-of-door Roses will be ready for exhibition. Then is Mr Cant usually a formidable opponent.

plants in bloom at a given time. They were one of the pleasantest as well as a distinct feature of the exhibition, and it should not be long before they are popular plants in every garden of average extent and means. Awards of Merit were recommended to two of the seedlings shown, viz., Agatha, a pale salmon-pink flower, with richer throat, and Epirus, a beautiful satiny rose-pink. Some of the best of named sorts are Isabel Watson, violet-purple, the centre of each segment being scarlet; Cooperi, a lovely white flower; La Reine, a very free, rather small-flowering variety, the plant shown carrying seventeen flowers and buds; La Belle, a large seedling white; Brilliant, small-flowered, brilliant scarlet; Ovis, pink; Thalia, scarlet and violet; and Jessica.

Mr. G. J. FRITCHARD, 78, Godwin Road, Forest Gate, had a group of succulent plants, but not much flower, and in the midst of such a temple of flowers they would hardly be likely to engage much attention.

cut blooms. Mr. J. PREWETT had silvered-arches, gites, &c., decorated with Pelargonium blossoms.

Other exhibitors of similar stands were Messrs. M. V. SEALE, of Sevenoaks; Mr. W. G. PARKER, 20, Oakdale Road, Sheffield; Miss DALTON, 28, Pilgrim Street, Ludgate Hill, London; Mr. W. SYDENHAM, Tamworth, and the LONDON WOMEN'S GARDENERS ASSOCIATION, Lower Sloane Street.

FRUIT AND VEGETABLES.

These products comprising food for the body rather than the eye, even though presented in singularly attractive form, were seen in considerable profusion, excelling the presentation of previous years, and generally in exceedingly fine condition. Notably attractive were—

Fruit Trees in Pots.—These came from Gunnersbury and Sawbridgeworth. Of the former Mr. Hudson, gr. to LEOPOLD DE ROTHSCHILD, Esq., had a big group in the large tent, arranged on the ground. There were in all nearly 100 trees. At the back were several Black Hamburgh and Foster's seedling Vines in good fruit. These were trained up to semi-wire arches, that ran out over the fruit trees below in pleasing form. The stone-fruits included Cardinal, Early Rivers, and Lord Napier Nectarines. Hale's Early, Early Grosse Mignonne, and Amsden June Peaches; Governor Wood, Early Rivers, May Duke, Bigarreau de Schrecken, Frogmore Early, and Elton Cherries; St. John Fig; Jefferson Reing Claude, and Early Transparent Gage Plums; many of these being duplicated, and all in fine fruit. Fronting the group were boxes of splendid Auguste Nicaise, and Royal Sovereign Strawberries, and the new white French variety, Louis Cantier. Also Giant Early Rivers and Lord Napier Nectarines, and several Cherries.

On the other side of the tent, Messrs. RIVERS & SON, Sawbridgeworth, had a fine lot of trees, chiefly of their beautiful Nectarine Early Rivers. One comparatively small Standard carried 24 fine ripe fruit, richly coloured, as indeed were all the fruits shown. The collection included Hale's Early and Crimson Galande Peaches, Early Rivers, and May Duke Cherries, Early Rivers Plum, and Monaco Bianco, and Marseilles Figs. In a box were very fine Early Rivers Nectarines.

Collections of Gathered Fruit.—The finest collection of this character was set up by that famous gardener Mr. McIndoe, gr. to Sir JOSEPH PHASE, M.P., Hutton Hall, Guisborough. He had in all twenty six dishes, inclusive, of Black Hamburgh, Foster's Seedling, and Early Saumur Frontignan, the latter a round white-berried Grape, an all of exceptional excellence for the season. There were also eight superb-looking Melons, named The Model, a white-fleshed variety, from Best-of-All and Scarlet Premier. The fruits were externally very yellow and handsomely netted, and when tasted by the Fruit Committee, had nice flavour, but the outer flesh was hard. Also large single fruits of Yorkshire Beauty and Scarlet Premier. There were fine exquisite Oranges, Imperial Lemons, large Brown Turkey Figs, Black Tartarian Cherries; Grosse Mignonne, Bellegarde, and Concorde Peaches, Early Rivers, Elruge, and Dryden Nectarines; Royal Sovereign Strawberries, Apples, and Tomatoes.

Messrs. G. BUNYARD & Co., Maidstone, set up a very remarkable and well-preserved collection of some 70 dishes of Apples, and one of fine Uvedale's St. Germain Pears. The Cooking Apples included Bramley's Seedling, Alfriston, Hoary Morning, Murphett's Seedling, Gascoigne's Scarlet, Ontario, a handsome American variety, as also King of Tomkin's County, Lord Derby, Laue's Prince Albert, one of the best; Belle de Pontoise, Bismarck, and Newton Wonder. Of well-kept eating varieties, Calville Blanche, Calville Malingre, Brownlee's Russett, Rillston Pippin, Cox's Orange Pippin, White Pearmain, Wadhurst Pippin, Cornish Aromatic, and Reinette du Canada, were capital. The entire collection showed rich colour and exceeding freshness. Backing the fruit were some small trees in pots of Emile de Heyst, Doyenné du Comice, and Louise Bonne Pears in nice fruit; quite small plants well fruited of St. John's Fig, and several plants of the Strawberry-Raspberry. These were about 12 inches in height, having Raspberry-like stems and leaves, but rather spiny, carrying white flowers, and some fruits yet imperfect and green, set in a dense ring of anthers. The only award made, was to a new American Apple Ontario shown by Messrs. G. BUNYARD & Co., Maidstone. The fruits were of good size, ribbed, colour clear yellow, much striped and flushed red, next the sun, the stalk an inch long, deeply inserted, eye open, also deep. The flesh is soft and very pleasant eating, it is evidently a good keeper (Award of Merit).

Mr. G. FEATHERBY, The Vinerias, Gillingham, Kent, had a good flat of capital Black Hamburgh Grapes, also bunches on a board finely coloured, good Hales' Early Peaches, Dryden Nectarines, Comet Tomatoes, Covent Garden Cucumbers, and Dwarf French Beans, all excellent.

Mr. J. RYDER, The Gardens, Hawkswick, St. Albans, had 16 superb fruits of Grosse Mignonne Peaches, the finest in the show.

From Mr. E. Beckett, gr. to Lord ALDENHAM, Elstree, were staged six fine Melons, Sutton's A1, and Masterpiece, The Countess, Blenheim Orange, Aldenham Perfection, and a fine green variety named Abundance. Smaller Melons in variety came from Mr. ROBINSON, Elmsfield House Gardens, Hollingbourne, Kent, the best being Netton's Eureka, and Victory of Bristol.

Mr. J. MILLER sent from Ruxley Lodge Gardens, Esher, a box of nice Royal Sovereign Strawberries.

A mixed collection, sent from Prescot Park, Berks, by Mr. W. L. BASTIN, gr. to ALEX. HENDERSON, Esq., M.P., included several diverse seedling Melons, including Biscuit Park Hero, Matchless, Telegraph, A 1, and Perfection; Tomatoes, Potatoes, French Beans, and Broccoli.



FIG. 128.—FLOWERS OF LILIUM RUBELLUM: FLOWERS ROSY-LILAC.

(Sketched at the Temple Show. See p. 321.)

Mr. GEO. MOUNT's Gold-Medal Roses from Canterbury were staged in No. 1 Tent. As usual from this establishment, cut blooms alone were shown, if we except a few profusely-flowered plants in 7-inch pots of Crimson Rambler. Most of Mr. Mount's blooms were displayed in boxes, but these were very effectively set amid blooms with long sprays and foliage, and with a suitable background. There were two dozen or more blooms of such varieties as Ulrich Brunner, Catherine Mermet, and Anna Olivier, but other sorts in fewer numbers. A box in which the Roses Niphetos and Catherine Mermet were associated alone was extremely pretty.

From Mr. J. RUSSELL, Richmond Nurseries, Surrey, was a group of plants of Rose Carmine Pillar, well-known for its large single, carmine-coloured flowers, and for its suitability for training to furnish pillars and such positions.

CACTACEOUS PLANTS.

These might be said to be constituted of Messrs. JAS. VEITCH & Sons, collection of beautiful hybrids of Phyllocactus. Messrs. Veitch have exhibited similar plants for several years, but never so well or largely as on this occasion. There were 450 plants, including 130 seedling varieties, now blooming for the first time, beside a large number of named sorts we have seen previously. It must have required much care and skill to obtain so large a number of

TABLE DECORATIONS, FLORAL DESIGNS, &c.

Tent No. 3 was, in a large measure, devoted to the display of arrangements of cut flowers, although individual exhibitors were allowed only a small space. One of the most prominent exhibitors in this section was the firm of B. S. WILLIAMS & Son, Piccadilly. They had a lovely basket of Carnations, two baskets of Orchids, and a mirror, the frame of which was composed of double white Narcissus bloom, and further adorned with Orchids.

The well-known firm of Messrs. PERKINS & Sons, Coventry, had a basket of yellow flowers and foliage, in which Cattleya citrina, various Oncidium, Maréchal Niel Roses, Croton leaves, and Asparagus were used. This, in our opinion, was very lovely. Their shower bouquets of Orchid blooms also showed excellent taste.

A very good exhibit was made by Mr. MOYSES STEVENS, 146, Victoria Street, Belgravia, his best being a large white wreath and a basket of pink Paeonies, and double white Narcissus blooms.

Messrs. JONES & Son, of Shrewsbury, who always exhibit well at the August show in that town, had pretty bouquets of Odontoglossums, Carnations, &c.

Mr. L. L. CALCUTT, Fernbank Nursery, Stoke Newington, had a number of gold-coloured wire stands, decorated with

VEGETABLES.

A very remarkable, though not a showy exhibit, was the collection of gathered Peas in large round baskets, each holding about half a bushel, sent by Messrs. Sutton & Sons, of Reading. No such fine samples has ever been seen at this or, perhaps, any other May show: the varieties comprised Sutton's Early Giant, very fine long pods full of rich green peas; Bountiful, A 1, and Empress of India. Also wonderful fruits, twenty-four in number, of the firm's Cucumber A 1, also Peerless, Pride of the Market, Every Day, Matchless, &c. The entire collection was most pleasingly set in Maidenhair Ferns.

Another very nice exhibit consisted of nine boxes of Tomatos and eight ditto Cucumbers, from Mr. S. MORTIMER, Farnham. The former comprised Sutton's A 1, Conqueror, Perfection, Earliest-of-All, Eclipse, Abundance, and Mitchell's Hybrid; the Cucumbers were Luckie's Perfection, Progress, Sutton's A 1, Improved Telegraph, Tender and True; and two seedlings, The Keeper, and Sensation, both remarkably prolific.

A wonderfully fine exhibit evidencing the finest quality and covering a table thirty feet long, was the collection from Aldenham House Gardens, staged by Mr. E. BECKETT. There were large mounds of Broccolis, Sutton's Late Queen, Veitch's Model, Perfection, and other; and beautifully firm and white a heap of Veitch's Early Forcing Cauliflower; also giant Leeks, Musselburgh, Lyon and Holborn Model. Various bundles of Rhubarb stems, too large; Cabbages, Ellam's Early, Flower of Spring, Model, and others; Sharpe's Victor, Sn wdrop, Harbinger, and Royal Ashleaf Potatos; Duke of York, Golden Nugget, Red Dessert, Perfection, and A1 Tomatos; delicious looking small fresh Radishes, Mustard-and-Cress, Dwarf French Beans, good Asparagus, Globe Artichokes; several diverse Potatos, Marrows, Peas, Cucumbers, Carrots, Turnips, and many other things, all of high excellence.

Mr. Hayes, gr. to the MARQUIS OF NORTHAMPTON, Castle Ashby, Northampton, had a smaller though very nice group. His best things were Asparagus, Cucumbers, Tomatos, including Ham Green, Polegate, and Excelsior, Early Nantes, and Forcing Carrots, Neplus Ultra, Dwarf French Beans, Potatos, Radishes, Lettuces, &c.

Mr. FRANK CHAPMAN, Colchester, sent numerous bundles of Colchester Asparagus, very fine, and resembling Connover's Colossal; also a bundle of New Green, the tops of pale green hue, rather than purple.

An artistically-arranged group came from the Horticultural College, Swanley (Superintendent, F. GRAHAM POWELL, Esq.). This included standard-trained Cucumber plants, each carrying fruits set into mounds of Dwarf Peas, in pots, grouped around being fine heaps of Tomatos, Potatos, Picked Peas, Dwarf Beans, Cabbages, Broccolis, beautiful Radishes, Asparagus, Mushrooms, &c., the whole forming a singularly attractive feature, while the quality was excellent.

Truly a huge exhibit was that staged by Mr. Empson gr. to the Hon. Mrs. WINGFIELD, Amptill, Beds, covering a table seventy feet long. At the back ran The Daisy, Stratagem, and Lightning Peas. Climbing French Beans, and Long Pod Beans, in pots, and well fruited, also some good Tomatos. Then there were Late White, Cattell's Eclipse, Mammoth, Model and other Broccolis; Jersey, Wakefield, Pizetaker, and Little Pixie Cabbages; a very extensive collection of Radishes, all as usual too large and old. Good Rochford's, Cardiff Castle, and Model Cucumbers; Duke of York, Marden Parke, and Chiswick Red Tomatos; Lettuces, Carrots, Asparagus, Mushrooms, Potatos, and numerous other things with some good dishes of Strawberries.

Messrs. JAS. CARTER & Co., Holborn, included in their huge exhibit some capital fruited plants of Duke of York Tomato; also a good heap of fruits by the same, and of Perfection; also numerous fruits of Model Cucumbers, and mounds of climbing French Beans, and Stratagem, and The Daisy Peas.

Mr. J. NICHOLS, Tooting, exhibited Dwarf White Celery, forced, but it was not well blanched.

Mushrooms.—Very fine lots of these useful funguses were sent by Mr. M. ADDEY, Ealing Road, Brentford, whose sample was not only young and firm, but showed surprising clusters; and from Messrs. MOUNT BROS., Canterbury, whose sample was older, and also were composed of massive clusters.

Lack of space obliges us to keep over the Prize List till our next issue.

ENQUIRY.

SALIX BABYLONICA: How far to the north in Britain does this tree grow?

NOTICES TO CORRESPONDENTS.

ALLAMANDA BLOSSOM: H. J. S. An attempt at doubling.

A NEW EXPERIMENT IN SENDING FRUIT FROM AUSTRALIA: Tomanian. We are unable to learn anything about this. The *Gulf of Bothnia* is a steamer hailing from Glasgow, and owned there. It is likely to unload at Manchester.

CORRECTION.—In last week's issue of the *Gardeners' Chronicle*, p. 308, 27th line from bottom, "fronds" appears instead of "fnds;" and in the winding up peroration "variation in shoots" takes the place of

"variation, in short;" both instances altering the meaning very materially. C. T. Drucry.

FERN: G. A. The roots have been injured, if not killed, by the mycelium of some species of fungus, originating probably on half-decayed vegetable matter present in the soil. In its immature state we are unable to identify the species. The cure is obvious.

FLORAL-GUM: G. B. W. We do not know the formula, but the gum can be obtained from the dealers in horticultural sundries.

FRUIT-BOTTLING: Fruticus. Any of the cheap cookery-books would include the various methods in use. We know of no manual dealing exclusively with the subject.

FRUIT-HUSHES, ROSAS, ORNAMENTAL SHRUBS: Fairintosh. We are unacquainted with the Scottish law on the subject of the removal of these plants by the outgoing-tenant, but the English law claims them for the landlord, unless an agreement exists to the contrary; or the tenant is a nurseryman, and the plants consist of plants of ordinary sale size.

IMANTOPHYLLUMS: B. P. The potting should be firmly done with the hands; use no rammer as this would cause bruising of the fleshy roots. The uppermost roots should come just beneath the soil.

INSECTS: B. W. W. The common woodlouse. Trap them with slices of Potatos. Go round at night. The young ones may be killed by boiling water.

MUSHROOM-BED FAILING TO PRODUCE MUSHROOMS: Coventry. You do not tell us what heat was present in the bed when spawned, nor the temperature at which the house or shed was kept, or if the spawn was new or old. It is not the best way to proceed to mix dung and soil together as you have done. Did you separate the dung and short straw from the long straw, and was it repeatedly shaken out and moved about till it had parted with its rank odour and heat? Was the litter from a stable where corn-fed horses stood? Have patience, for if strong heat has not killed the spawn, Mushrooms may yet appear. If no Mushrooms appear in a month, throw out the bed and make a new one in a cool place, as a cellar or under trees. Beds made in wooden sheds at this season do no good.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—Bassett. *Ribes speciosum*, so far as we can determine from the specimen sent.—E. S. M. *Dimorphanthea pluvialis*.—C. H. 1, *Anthriscus vulgaris*; 2, *Glechoma hederacea*; 3, *Geranium Robertianum*; 4, *Veronica Chamædrys*; 5, *Potentilla anserina*; 6, *Erysimum Alliaria*.—Tregenna. 1, *Saxifraga granulata*, double fl. var.; 2, next week.—G. T. A species of *Euonymus*, perhaps, *E. europæus*.—G. B. *Piptanthus nepalensis*.—D. C. H. 1, *Uvularia perfoliata*, *Lathyrus Nissolia*. Please send better specimens; remember when they reach us they are likely to be shrivelled beyond recognition, unless you pack them properly.—V. J. S. A variety of *Cupressus Lawsoniana*, *Diplacus glutinosus*.—J. M. O. 1, *Bridgesia spicata*; 2, *Viola hirta*; 3, *Ægeopodium podagraria*; 4, *Lycium barbarum*.—Correspondent. O. *Rosii majus*. Thanks for flowers sent; they are both good varieties, the rose-tinted O. crispum especially so. Box marked fragile: *Dendrobium crystallinum*.—J. A. *Caladium argyrites*, and a crippled flower of *Odontoglossum citrosum*.—A. V. W. 1, *Davallia canariensis*; 2, *D. Tyermanni*; 3, *Anthriscum lineare variegatum*; 4, *Dracæna rubra*; 5, one of the hybrid *Rhododendrons*.—W. T. 1, *Pteris quadriaurita*; 2, *Adiantum concinnum*; 3, barren frond of No. 1; 4, A. formosum; 5, *Polypodium pustulatum*; 6, *Adiantum trapeziforme*; 7, A. *macrophyllum*; 8, A. *cardiophylla*.—Mrs. H. *Malanthemum bifolium*, *Ruscus hypophyllum*.—C. H. O. *Carex glauca*.—E. T. *Ashworth. Orchis pallens*.—J. A. W. *Eurycles sylvestris*, *Salix*. (*Bot. Mag.*, t. 1419).—Tregenna, *Prunus japonica*, fl.-pl., not new.—W. H. M. *Munches*. *Pyrus* (perhaps a deeply-coloured form of P. *Malus*). Cannot name with certainty from such scraps.—B. 1, *Clematis montana*; 2, *Prunus Cerasus*.—J. H. F. *Luisia tenuifolia*.—B. M. D. *Clematis montana*.—Mr. Garnett. A distinct natural hybrid *Odontoglossum*, which we have not previously seen.

NEW SPECIES OF COTTON PLANT: Carl Dignowitz and Wulf-Wulff. We have no further information to give regarding this so-called new Cotton than appears in our issue for May 14 last. The plant

is probably not a Cotton (*Gossypium*), but some species of *Malvaceæ*, and of no commercial value.

"MITES": G. A. We should like to see some of these universal destroyers infesting your garden. Will you kindly send some. We know of no "mite" that is equally destructive to *Eucharis* and other bulbous plants, and to such diverse plants as *Primula sinensis*, *Lobelia cardinalis*, *Calla*, *Echeveria*, *Cannas*, *Athuriums*, &c.

PEACH LEAVES DISFIGURED: W. T. The spots are caused by a fungus, *Phyllosticta persicæ*. Use against it sulphur washes, or the Bordeaux Mixture, or sulphide of potassium $\frac{1}{2}$ oz. to a gallon of water. The worst leaves should be removed and burned.

PEAR SHOOT: G. A. The swollen corky appearance is due to a fungus, *Nectria ditissima*. The minute reddish warts appearing on the surface being the fruit of the fungus. The cancerous swelling should be cut out, down to sound bark and wood, and painted with clay and bullock's blood, mixed with cow-hair so as to bind it together. In the specimen sent the bark is dead all round the shoot, and is lifeless beyond that point.

PEAS: Walton. *Julus* chiefly feed on decaying matter, but are not averse to living Pea-roots, &c.

PRESERVING FLOWERS: B. P. Lay the flowers and foliage naturally and thinly on sheets of coarse paper, inserting these sheets between a few other sheets; place them under a weighted piece of board, and examine them on alternate days, changing the paper they are in contact with for fresh paper. It is not possible to make their colours permanent, and it is advisable to attach a coloured drawing of the flower to each sheet.

PRUNING WEIGELA: W. P. Prune after the plant has borne the bulk of its flowers, unless it be an old almost flowerless bush, then prune in the late autumn; cutting hard into the old wood.

ROSE: S. B. J. We do not undertake to name garden Roses.

ROSE WITH GREEN CENTRE: L. D. D. The example sent is a proliferous one, several small flowers having come in the centre. It is not uncommon.

SPIRITS OF TURPENTINE AND LIVING PLANTS: F. C. We should advise you not to make use of this liquid in making any sort of grafting-wax; it might be injurious to stock or scion, and is not required. All that is wanted in making a grafting-wax to be used warm are tallow, bees-wax, and a little resin, the last two being first melted, and the tallow added till the mixture loses the greater part of its stickiness.

SULPHIDE OF POTASSIUM: Fotash. Ask for liver of sulphur.

TOMATOS: J. W. McHattie. The red-fruited variety is very solid and weighty, and having fruited so abundantly in three months from the time of sowing it is well named Early Cluster. The yellow-fruited variety, Prince of Wales, is very free in setting, of an attractive colour, medium size, and nice flavour; well adapted for consuming in the raw state. The forcing Turnip is one of the Navet varieties, commonly met with in continental gardens and markets. They are nice-eating, being tender and well flavoured when young, but soon getting hot and stringy. For hotbed-work they are excellent, being as quick as the flat white Dutch, and requiring less space per plant. The Teltan is a good form of Navet, but not so rapid in growth as some other varieties. We always welcome any vegetable, new or old, that is out of the common run.

VINES: Japonica. The leaves sent show great ravages from thrips and red-spider, and their crippled appearance is mostly due to these insects. The soil is not exactly suitable for Vines, and considering that the Vines have been so lately planted, and doubtless in a new border, it could not have consisted of quite the best kind. Can you not get some experienced gardener to inspect the Vines and give you hints on their culture?

COMMUNICATIONS RECEIVED.—R. A. R.—L. C.—W. E. G.—W. B.—P. M. T.—R. I. L.—W. T.—J. G.—W. R.—J. H. H.—Mrs. H.—Agricultural Seed Trade Association.—J. H. H., Trinidad.—C. S. S., Boston, U.S.A.—F. A. W., Vermont, U.S.A.—W. C.—Miss D., Montreal.—J. G.—W. N. B.—E. R., Ghent.—W. C. W.—J. G.—C. C. H.—D. T. F.—J. Carter & Co.—R. D.—E. C.—E. J.—W. H.—M. T.—G. G.—H. M.—M. D.—F. R. H. S.—H. T. M.—H. R. Präscher & Co.—J. H.—W. E. G.—B. M. D.

PHOTOGRAPHS, SPECIMENS, &c. RECEIVED.—R. I. L.—C. T.

DIED.—REINHARDT MAITRE, at New Orleans, on April 14, 1898, at 7 o'clock, A.M., after a long lingering illness, aged 67 years 9 months.

(For Markets and Weather, see p. x.)



THE

Gardeners' Chronicle.

SATURDAY, JUNE 4, 1898.

EVAPORATION FROM FRUIT TREES.

WHEN Dr. Lindley was editor, in the early days of the *Gardeners' Chronicle*, some fifty years ago, he suggested to J. B. Lawes, Esq., of Rothamsted (now Sir J. B. Lawes, Bart.), who was then beginning to publish some of his investigations, that it would be desirable to institute a series of experiments having for their object the determination of the relative evaporation occurring in evergreen and deciduous trees. In consequence, three young plants were selected each of the following, i.e., Spruce Fir, Portugal Laurel, evergreen Berberis, Yew, Holly, common Laurel, Larch, Oak, deciduous Berberis, Ash, and Sycamore, duly weighed and placed in zinc pots, the weight of these and the soil employed being ascertained. It would be unnecessary here to detail the method adopted for the regulation of the supply of water, and determining the amount of evaporation, but the same patient care in observation and strict accuracy in recording the results which have given the Rothamsted experiments so high a value in the eyes of scientific and practical men, were exercised in every way. The results were published in the *Journal of the Horticultural Society*, and established two interesting facts, one being that a considerable amount of evaporation takes place during the winter months from both evergreen and deciduous trees; and the other, that the proportionate evaporation from deciduous trees or shrubs when divested of their foliage is much greater than would be supposed, considering that the whole of the moisture then lost passes through the bark of stem and branches. For example, in four months, from December 22 to April 24, it was found that the common Holly lost 23,780 grains, while in the same period the Larch lost 11,570 grains; the evergreen Berberis lost 24,530 grains, and the deciduous Berberis evaporated 11,740 grains—in each case nearly one-half of the total evaporated from the plants furnished with leaves.

The subject of winter evaporation has been studied by several investigators since, and in quite recent times Professor L. H. Bailey has given it his attention, with especial reference to hardy fruit trees. A small branch of an Apple-tree, weighing 4.425 grammes, was taken early in April; the cut end was closely sealed with wax,

and the loss of weight by evaporation was determined at short intervals for three days, the result being a total loss of 39 centigrammes, equal to 8.8 per cent., or a nearly constant average loss of half a centigramme per hour. As this experiment was conducted in a living-room, where, presumably, the air would be considerably drier than out-of-doors, it can only serve as a comparative indication of the loss occasioned by evaporation under natural conditions. To ascertain if there was any foundation for the statement that "the rate of the loss of moisture from trees in winter determines the relative hardness of different varieties of Apples and some other fruits," twigs of nine well-known American Apples were weighed, sealed, and treated as in the preceding experiment, except that they were placed in an "open shed," instead of in a room. The loss in two days varied from 2.8 per cent. to 10.3 per cent., but it was found that "the percentage of loss of moisture bears no relation to the supposed hardness of the varieties." It was, however, observed in some further experiments that there was a great difference in the loss of moisture from several twigs of the same variety. Thus, in five twigs of Duchess of Oldenburg, the loss ranged from 6.07 to 13.1 per cent., while the same number of Baldwins varied from 9.74 to 11.5 per cent.

More elaborate investigations were commenced by Mr. A. L. Kniseley (one of Prof. Bailey's students) in January, 1897, in which twigs were taken of Apples, Pears, Plums, Peaches, Cherries, and Apricots, besides several common deciduous trees. The specimens of the fruit-trees were from 3 to 7 inches in length, and the cut ends were plunged in melted paraffin. They were then either tied to the trees or placed in equally exposed positions, and weighed at the end of seventy-two hours, and again after another seventy-two hours' exposure, making six days in all, the weather varying during that time in brightness, but the temperature was below freezing-point (Fahrenheit) throughout the period. The principal results obtained are embodied in the table appended, which has been condensed from the original record, all the weights being in grammes and decimals:—

Fruit.	Twigs.		Loss of Moisture.			Loss per square foot of surface.
	No.	Weight.	First three days.	Second three days.	Total.	
Apple ...	3	4.5158	.0316	.0505	.0821	.338
Pear ...	4	10.424	.0465	.0919	.1384	.354
Plum ...	3	7.0359	.0609	.1041	.1650	.429
Cherry ...	1	1.9245	.0100	.0173	.0273	.225
Apricot ...	4	6.9312	.0425	.0861	.1286	.268
Peach ..	2	3.8156	.0379	.0688	.1067	.410

Mr. Kniseley remarks in reference to the bearing evaporation has upon injuries by frost, "in freezing weather the moisture, even though frozen, is probably evaporated from the tree-tops; and the sap being frozen, does not flow up from the roots and replace the evaporated moisture. Thus the equilibrium between tree-tops and roots is unbalanced, and it is at this time that the twigs become shrivelled by reason of moisture being lost and not replaced." The shrivelling here noted I have often observed in dry winters, and though it is not always attended by actual frost injury, as appears to be the case in the United States, yet it is commonly followed by feeble growth in the spring, the buds starting weakly or irregularly.

For a considerable time it has appeared to me that the evaporation of moisture from deciduous trees during winter nights has a material influence upon the varying behaviour of fruit-trees in different seasons, both as regards early or late planting, and early or late pruning. There are many points in favour of early planting which need not be detailed now, and it is a practice which general experience renders desirable; but the fact remains that in some seasons there is no appreciable difference between early and late-planted trees where equal care has been exercised, and occasionally the late-planted trees seem to have the advantage. Frequently, however, the difference is more marked as regards the first pruning after planting, and it is this which has caused some advocates to strongly urge the desirability of delaying the first pruning until the season after planting, while others as strongly advise the pruning to be done immediately the trees are placed in the ground. Such divergences of opinion do not arise without substantial reasons, though they are not always easy to discover or explain. They are usually founded upon desultory and unmethodical observations, so that it is difficult to arrive at a clear understanding respecting them. But in view of the facts recorded, there can be no doubt that in dry winters a great quantity of moisture is evaporated from trees which, under some circumstances such as those set forth by Mr. Kniseley, may be extremely prejudicial to the starting and development of the buds in spring.

One point, however, which has a considerable bearing upon the matter is not dealt with in any of the experiments described, and that is, when a tree is pruned a large number of cut surfaces are exposed from which it may be supposed the evaporation would be much more rapid than through the bark. The best method of determining this would be that adopted at Rothamsted, namely, selecting small trees, then weighing them after pruning, and continuously over a period sufficient to give definite results. It seemed to me, however, that some approximation to the truth might be gained by the following means: In January ten shoots each were selected of as nearly equal diameter as possible from about thirty-six varieties of Apples, and they were all cut to 30 centimetres in length (about two-eighths of an inch less than a foot). The shoots of each variety were then weighed and suspended amongst the branches of trees, in a similar position as regards exposure to that occupied by those from which they were cut. They were weighed four times: immediately before placing them out in the trees, at the end of two days, again after the lapse of a week, and then at the end of a month from the second weighing. It appeared possible that some proportionate differences might be found in the loss from the slender shoots as compared with the larger and more vigorous shoots, a selection was therefore made, and they were classed in three degrees, 1st, slender; 2nd, medium; 3rd, large; ten varieties being included in each section. The results are shown in the following tables, all the weights being taken in grammes:—

FIRST SECTION: SLENDER GROWTHS.

Weight in Grammes.

Variety.	Number of Shoots.	Weight after Cutting.	Weight after 2 Days.	Weight after 9 Days.	Weight after 30 Days.	Total Loss.
Cox's Orange ...	10	57	52	49	38	19
Mannington's Pearmain ...	10	52	49	41	37	15
Ross Nonpareil ...	10	43	41	36	32	11
Margil ...	10	43	40	33	30	13
Wealthy ...	10	45	42	40	34	11
Cockle's Pippin ...	10	37	35	30	27	10
Gravenstein ...	10	54	52	45	38	14
Rivers' Early Peach ...	10	55	53	48	40	15
Scarlet Pearmain .	10	46	44	38	32	14
Dutch Mignonne .	10	37	35	30	25	12

The loss in the first two days was remarkably uniform, averaging 2.6 grammes. The average loss for nine days was 7.9 grammes; and for the whole period 13.4 grammes for the ten shoots of each variety.

SECOND SECTION: MEDIUM GROWTHS.

Weight in Grammes.

Variety.	Number of Shoots.	Weight after Cutting.	Weight after 2 Days.	Weight after 9 Days.	Weight after 30 Days.	Total Loss.
Brownlee's Russet	10	65	63	56	48	17
Fearn's Pippin ...	10	70	67	60	50	20
King of the Pippins ...	10	65	62	55	47	18
Sturmer Pippin ...	10	67	65	58	51	16
Red Juneating ...	10	65	61	55	46	19
Claygate Pearmain	10	61	58	53	43	18
Gascoyne's Scarlet	10	61	61	55	50	14
Lord Grosvenor ...	10	71	68	60	52	19
New Northern Greening ...	10	66	63	58	47	19
Bismarck ...	10	70	68	58	50	20

The average loss was greater in this section, amounting to 2.8 grammes for 2 days; 9.6 grammes for 9 days, and 17.3 grammes for the whole period.

THIRD SECTION: LARGE GROWTHS.

Variety.	Number of Shoots.	Weight after Cutting.	Weight after 2 Days.	Weight after 9 Days.	Weight after 30 Days.	Total Loss.
Twenty Ounce ...	10	99	96	87	74	25
New Hawthorn-den ...	10	100	97	88	77	23
Lady Henniker ...	10	84	80	73	63	21
Royal Jubilee ...	10	80	78	67	58	20
Grange's Pearmain	10	82	80	70	60	22
Warner's King ...	10	92	88	82	70	22
Newton Wonder ...	10	85	81	75	63	22
Bramley's Seedling ...	10	30	78	70	60	20
Potts' Seedling ...	10	104	102	92	78	26
Blenheim Orange	10	74	70	62	50	24

A still further increase in loss is shown in these varieties, but surprisingly uniform throughout. Average loss in two days, 3.0 grammes; in nine days, 11.4 grammes; in thirty-nine days, 22.7 grammes.

The weather conditions during these observations were variable, but it was generally dry, the rainfall scarcely exceeding an inch, with frequent frosts. It will be seen on comparison of the tables with Mr. Kniseley's that the average weight of the shoots was greater in the case of those 1 tested. For instance, the average weight per inch of the Apple shoots in the American experiment was 3763 grammes; in my specimens the average weight per inch was approximately as follows:—In the first section, 3908 grammes; in the second, 5533 grammes; and in the third, 7333 grammes; so that they were presumably larger, and therefore more bark surface was exposed. But allowing for this, the loss by evaporation was nearly double that recorded by Mr. Kniseley, and therefore the difference may be fairly considered as mainly due to the cut surfaces exposed. When such surfaces are upon the living plant instead of separated shoots, it may be presumed that the evaporation would be enormously greater (at least, until the tissue had healed sufficiently to check it), and this is the loss which in severely dry winters might produce injurious results that would point to pruning immediately after autumn-planting being a source of danger.

The subject is an interesting one, and would require a carefully-devised series of experiments to treat exhaustively. My remarks are offered only as a brief review of the matter, and are intended to be in a measure suggestive. *F.R.H.S.*

ORCHID NOTES AND GLEANINGS.

DENDROBIUM NOBILE.

THE usefulness of this handsome old species is well exemplified in the gardens of T. F. Blackwell, Esq., The Cedars, Harrow Weald, where it has been in

bloom for several months. Mr. J. Dinamore grows a number of small and middling-sized plants, which he brings on in succession, and thus has them in bloom for a considerable period during the spring and early summer. At present a pretty specimen of the best type covered with flowers occupies the centre of a group in the intermediate-house where the Orchids are well grown, arranged with scarlet Anthuriums and foliage plants. Arranged with the specimen of *D. nobile*, before alluded to, are several smaller ones, plants of *D. fimbriatum*, *D. moschatum*, and other Dendrobies, and on the side stages are some finely flowered *Odontoglossum Halli*, *O. ciriosum*, *O. crispum*, *Miltonia vexillaria*, *Miltonia Roezli*, &c., and on one side of the central stage good varieties of *Cattleyas*, and a fine example of the elegant yellow *Oncidium flexuosum*. Considering that but a limited number of Orchids are grown at the Cedars, it is surprising the number of showy kinds there are in flower there at all seasons.

STRAWBERRIES AT HATFIELD.

UPON reaching Hatfield Gardens, my first request was to be shown the Strawberry-houses, for to see them was my primary object. The first house was a 100 feet lean-to, some 8 feet wide. Fine shelves, bringing the plants near the glass, run the entire length. One half of the house was filled with *V. Héricart de Thury*, President, Sir Charles Napier, and others, but the other half was full of Royal Sovereign exclusively, carrying a marvellous crop of ripening fruit. There were in this block 400 plants of the variety. On every plant the fruits were wonderfully fine, quite equal to those figured in *Gardeners' Chronicle* last week; and a look from the end of the house along the lines of fruit hanging from the plants was a revelation. In another large span-house were 800 plants not quite so forward, but those at the warmest ends were carrying grand ripe fruits, of the finest form, and of that rich deep scarlet hue for which Royal Sovereign is famous. All round the house were four rows, and on the broad centre stage six rows. In every case the plants were placed so that the fruits were distant from the alley, the object being to prevent, so far as ordinary precaution could, the fruits being injured by the water-pots. I also saw a third, though smaller houseful, and hundreds of plants on tall shelves in Carnation and other plant-houses; upon all these the average number of fruits carried was nine. It is interesting to find that the thinning is done before blooming is finished. This practice is based on the belief that even the carrying of superfluous flowers after the needful number have expanded is a waste of strength.

Outdoors, standing in an exposed wind-swept area, were some 2000 plants yet for use if needed, and if not required, the blooms being now picked out, they will fruit well in the autumn if planted out. Altogether, about 8000 plants are annually potted. Of all the varieties, probably, one-third are Royal Sovereign, because it has at Hatfield proved to be, without exception, the finest forcing variety; outdoors also it is one of the very best. But something more than ordinary culture seems needful to produce such a fine crop and superb samples. Mr. Norman, however, states that it is but a matter of attention, and nothing more. He plants early in the autumn in rows some 30 inches apart strong-rooted runners purposely to furnish plenty of extra early runners for pots. That is common practice now. These, as I saw them recently, had been lightly mulched, and the trusses of flowers were being gathered as rapidly as they developed. Layering into pots is performed as fast as runners are formed, and these in dry weather get frequent watering. But the chief work is found in the final potting, which takes place as soon as the runners have become well established in their first pots. In all cases 7-inch, or large 32-sized, pots are used. Each one has placed in it fully one-fourth its depth of crocks for drainage, some have even one-third. I saw several spent plants turned out of the pots, and in each case the quantity of drainage was unusually great. On the crocks is laid a small portion of moss to prevent choking, and then on that

a sprinkling of clear soot. The compost is almost exclusively a stiff, turfy loam, almost fresh, the grass being pulled from the turves, and the soil well chopped up. Much of this soil had the firmness of clay, and it was rather rough than fine in texture. Potting is done very firmly. The plants are then, as is usual, stood on a hard coal-ash floor fairly close together, and in dry weather watering is carefully attended to. Water-logging is impossible owing to the abundant drainage given.

The grower's aim is to secure stout, sturdy, well-exposed leafage, solid single crowns, and a pot well filled with fine fibrous roots. All the plants turned out of pots showed this feature admirably, there being an entire absence of large fleshy roots. No doubt, the very firm soil, ample drainage, and absence of animal-manures conduces to this.

Wintering is of the most exposed nature, for the plants remain all the season just where placed after potting, with some ashes amongst them, and around the edge of the entire block. Only some needed for the earliest forcing are placed in a frame, so as to forward them slightly. All plants as needed are brought on tentatively, the temperature, at first low, being gradually raised, as sudden excitement causes the crowns to break ere the roots have become active. No form of stimulant is given until fruits are well set, and even then almost entirely in liquid form, and diluted. Practically, the soil used being so strong and full of fibre, seems to possess all food requirements. No special manure is employed. Soot-water, stable and cow-shed drainage, and similar simple liquids, constitute the chief manures given, and these are withheld when colouring is well advanced. *A. D.*

THE ROSARY.

CHINA, POLYANTHA, MOSS, AND PRO-VENCE ROSES.

THOSE classes of summer and autumn-flowering Roses which are of great value for garden cultivation, have of late years been greatly enriched by new and valuable introductions, for the most part of British and French origin. One of the most important of these novelties, however—a climbing Polyantha of attractiveness and decorative capability, while owing to its great popularity to an English cultivator, was originally brought from Japan. On the other hand, two of the finest of the most recent additions to our China Roses, both of these highly distinctive in colour, and possessing other attributes of hardly less importance, were raised and introduced by that veteran rosarian, Mr. William Paul of Waltham Cross. I refer to the varieties denominated respectively Queen Mab and Duke of York, of which the latter has been awarded a First class Certificate by the Royal Horticultural Society. I have never seen these varieties so impressive anywhere else as at Waltham Cross. I have an idea that China Roses, being of a somewhat delicate nature so far as regards the texture of their flowers, are greatly affected when grown in the open air in a wet climate like ours, by the influence of rain; this is altogether prevented when they are grown under glass, for which, I may add, Queen Mab and Duke of York are admirably adapted. Under such conditions, observation has taught me, they are seen at their best. Another modern China Rose of great fascination, by reason of its exquisite colour and the extreme beauty of its foliage, is Laurette Messimy, for which we are indebted to the late M. Guillot. It is not so subject as many of its class to the influence of adverse atmospheric influences; and from the middle of May till the end of November (often much later), it is never out of bloom. Grower side by side with such varieties as the "brave old Monthly Rose," as Dean Hole has called it, the beautiful dark-hued *Cramoisi Supérieur*, or the pure white *Ducher*, it offers a charming contrast to these. Several of the Chinas are not far behind the Tea Roses in graceful effect.

Most of the dwarf Polyantas, as I have already

indicated, are denizens of France. There is, however, one exception to the general rule, viz., the variety entitled *Little Dot* (white, with salmon-pink shading), raised by the late Mr. Henry Bennet, to whom in other directions, we owe so much. Of the continental Polyanthas, the most attractive, in my experience, are *Perle d'Or*, nankeen yellow, with deep orange centre; *White Pet*, whose colour is suggested by its name; *Etoile d'Or*, citron-yellow; *Gloire de Polyantha*, deep rose, shading into white in the central petals; and *Anne-Marie de Montravel*, whose snowy-white flowers, produced in great abundance, have a perfume rivalling that of *Andromeda flori-*

are the *Crested Moss*—supposed to be a variation from the old *Pink Provence*—which was originally discovered growing out of a convent wall near Berne, in Switzerland; this *Rose* is uniquely interesting, and, in the language of Shakespeare, applied to a widely different object, "bearded like a pard;" certainly the most heavily crested of them all. But by far the loveliest of Mosses are those pure white varieties, viz., the *white Bath* (raised by Salter at Clifton, a suburb of Bristol in 1810); and that notable French creation, *Blanche Moreau*. If I were strictly limited to one Moss *Rose*, I should undoubtedly choose this. During last summer for several weeks of almost uninterrupted

common Indian Fig, and cylinder-branched (*Cylindropuntia*), of which *O. arborescens* is an example. Most of the latter group are remarkable in having a loose papery-sheath over each of their large spines, the tip of the spine projecting slightly through an opening at the top. *O. tunicata*, of which good examples may be seen at Kew, is one of the commonest of this group.

There are about half-a-dozen species, all natives of the Argentine Republic, which differ from all other *Opuntias* in having long, flat, paper-like "spines" springing from among the tufts of short bristles, which crown each of the hump-like tubercles of the

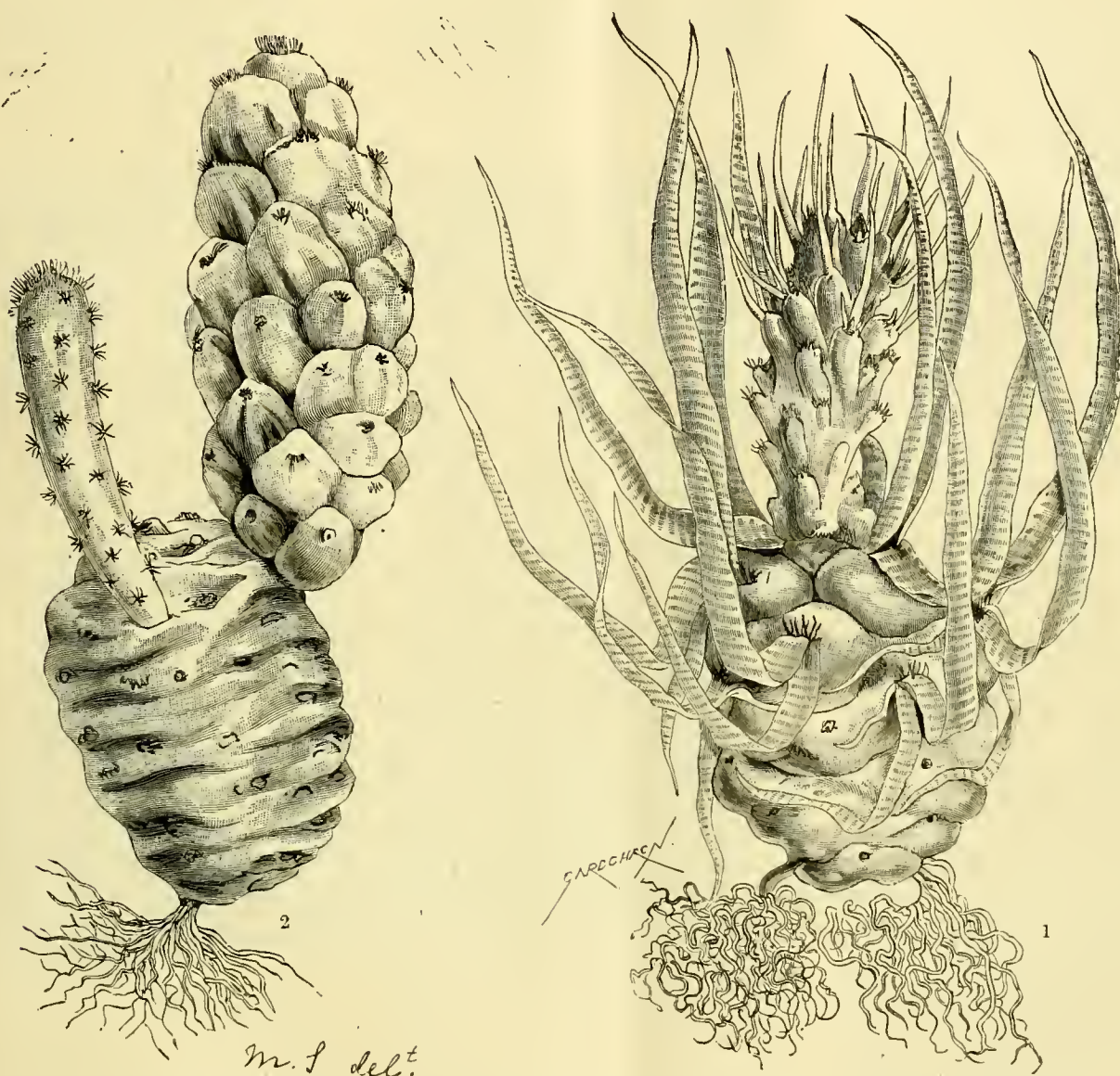


FIG. 129.—PAPERY-SPINED OPUNTIAS: 1 *OPUNTIA PAPYRACANTHA*; 2, A FORM OF *OPUNTIA PAPYRACANTHA*.

bunda. Of climbing Polyantha Roses, the grandest is undoubtedly Turner's *Crimson Rambler*, to which allusion has already been made; this great climber is especially fine on a south or west wall. One of its superb crimson trusses in my own garden last summer had eighty brilliant flowers, which kept their colour for several weeks. This special qualification, combined with its marvellous brightness, makes it invaluable. *Aglaia* and *Claire Jacquier* are yellow climbers of greatly less attractiveness. *Polyantha grandiflora*, a white variety, with luminous foliage, is a splendid pillar Rose.

Among the Moss and Provence Roses, which by reason of their close relationship should be accounted as pertaining to one section, my own supreme favourites

calmness and sunshine, it was much more beautiful, alike in bud and fully-expanded blossom, than I have ever had the privilege of seeing it before. It is something to have seen such a Rose as this "in the most perfect phase of its possible beauty." *David R Williamson*.

PAPERY-SPINED OPUNTIAS.

THE genus *Opuntia*, as at present constituted, comprises about 150 species, two-thirds of which are natives of North America, the other third being scattered over South America and the West Indies. Its great variety of forms are separated into two groups, viz., flat-branched (*Platopuntia*), represented by the

stem. These are known as the broad-spined *Opuntias* (*Platyacanthæ*), and several of them are in cultivation under such names as *O. Turpini*, *O. diademata*, and *O. glomerata*. Very little appears to be known about them, even to botanists, and so far as I know they never flower under cultivation. The most striking of the species of this group is that represented in the illustration (fig. 129) taken from a specimen sent to the Editor, and which has lately been added to the Kew collection through the kindness of Señor Douglas Junor of Floresta, Buenos Ayres, a dealer in Cactaceæ. He calls it *O. plumosa nivea*, but it is, no doubt, the *O. papyracantha* of Philippi, a native of the Argentine Cordilleras.

The plant figured has grey-green, ovate branches,

2 to 3 inches long, the surface broken into broad tubercles $\frac{1}{2}$ inch apart, each crowned with a dense, brush-like tuft of short brown bristles, and two or three sub-erect, flat, thin, cartilaginous, paper-white appendages, which are neither leaves nor spines nor sheaths, but probably modifications of the latter, the spines they once covered having been suppressed. These appendages are from 1 to 3 inches long, $\frac{1}{2}$ inch wide at the base, tapering to a fine point, the margins more or less ragged. The plant at Kew is thriving in a tropical-house, and it looks as if it will not be difficult to manage. The plant numbered 2 in figure appears to be a form of *O. papyracantha* without the paper-like spines. The two were sent together. W. W.

SYDENHAM TEAST EDWARDS.*

In the *Gardeners' Chronicle*, December 4, 1897, p. 405, Mr. F. W. Burbidge expressed a desire that I should communicate what I knew concerning the history of *The New Flora Britannica*, which I willingly do, though I doubt whether there are many readers of the *Gardeners' Chronicle* who take as much interest in bibliographical researches as Mr. Burbidge and myself. For that reason I will be brief. Ten years ago, I contributed to the columns of this paper a succinct history of the *Botanical Magazine*, and kindred English contemporary literature, and among other things I gave some particulars of Sydenham T. Edwards's connection with that and other illustrated horticultural and botanical publications. At that date I only knew of the existence of the work in question under the title of *The New Botanic Garden*. Indeed, until Mr. W. E. Gumbleton came to Kew towards the end of last year to examine the Kew copy, I was unaware that *The New Flora Britannica* was exactly the same, excepting the title. But there are still further complications. As stated (*Gardeners' Chronicle*, December 11, 1897, p. 417), the same plates illustrate a work which appeared under the title of *A Complete Dictionary of Practical Gardening*, by Alexander Macdonald, 1807. This, so far as my researches go, was the first issue of these excellent plates, and the name Sydenham Edwards appears as the artist, and F. Sansom as the engraver, in each case. Therefore, it was hardly the case, and certainly not the consequence, of his secession from the *Botanical Magazine*. It is probable that the title *New Botanic Garden* was substituted for *New Flora Britannica* (as being more appropriate), for a part of the same issue; because the date, 1812, and everything else, is the same. Although the *Dictionary* is dated 1807, there is evidence that it appeared in parts, the plates being variously dated 1805 and 1806; those dates, and the general lettering, are the same in the *New Botanic Garden*, and the letterpress relating to the plants figured is almost word for word the same. The *Dictionary*, of course, is much thicker, consisting of two volumes. The letterpress in the first volume runs to 3 P in the signatures, and to 4 D in the second. According to Johnson (*History of English Gardening*, 1829), Alexander Macdonald was the pseudonym of a Dr. R. W. Dickson, of Hendon, Middlesex, "author of several agricultural works," concerning whom I have learnt nothing further. Britten and Boulger (*British and Irish Botanists*) add nothing.

R. Taylor (now Taylor & Francis) was the printer of the *Dictionary*, and G. Kearsley the publisher; whilst F. Bensley, of Bolt Court, Fleet Street, printed the *New Botanic Garden*.

Although I have failed to find any information on the early life of Edwards, or indeed, any connection with his social relations, I am able to give some further particulars of his professional career.

In the twenty-ninth volume of the *Botanical Magazine* (1809), immediately following the text to plate 1232, in the Kew copy, there is a notice to

subscribers concerning the artists who had drawn the figures published therein up to that date. It seems that some friend had given out that J. Sowerby was the designer of a large proportion of the figures; but the editorial note referred to above states that with the exception of sixty-seven executed by Sowerby (which are all indicated in detail), and eight by Sansom, the engraver, in vol. vi., the whole were done by Edwards. By mistake, twelve drawn by Edwards were attributed to Sowerby. These are indicated, as well as the unsigned ones drawn by Sowerby. Until I discovered this note I was under the impression that W. Curtis himself had drawn the figures of many of the unsigned plates in the early volumes. This view was shared by Dr. A. Curtis, of Staines,* who supplied me with many facts in the history of the family, and through whom Kew purchased some 1600 original drawings, which, with few exceptions, were published in the first series of the *Magazine*.

In 1828, Samuel Curtis, then proprietor, published his *General Indexes to the Plants figured in the First Fifty-three Volumes of the Botanical Magazine*, preceded by *Memoirs of the Life and Writings of William Curtis*, the founder of the *Magazine*. From this I extract the following particulars relating to Edwards:—"But the artist of most use to Mr. Curtis was Sydenham Taste (sic) Edwards, who was introduced to him for the purpose of his patronage by a Mr. Denman,† who if we are not mistaken, was at the time town-clerk of Southampton. Mr. Denman, being of a scientific turn of mind, and happening to be at Aber-gavenny, noticed Edwards, whose father was a school-master, and the organist there. Young Edwards, whilst a boy, had copied some of the plates of the *Flora Londinensis*, which were shown to Mr. Curtis, who was so pleased with them that he sent for him to London, and had him instructed in drawing, &c., in which he improved very rapidly, and soon became able to draw and etch the plates of the *Flora Londinensis*‡ and the *Botanical Magazine*. The drawings for the magazine were entirely his own for many years, and were executed with a correctness not before known in periodical publications. It was not to plants alone that Mr. Curtis had directed the genius of Edwards. He attended him on most of his excursions in search of natural history; and whenever any curious bird was shot, any curious insect taken, or any natural object of curiosity, it was his business to make a correct drawing of it. . . . In this manner many years were spent, and Edwards was the companion rather than the servant of his patron up to the death of Mr. Curtis."

This event occurred in 1799, but Edwards continued sole artist for the *Botanical Magazine* until 1815, when, in conjunction with John Bellenden Ker (previously Gawler), he founded the *Botanical Register*, on much the same lines as the *Botanical Magazine*, though he added floral analyses to some extent.

This step on the part of Edwards was regarded as an act of ingratitude by the Curtis family, and Samuel Curtis, in the memoirs from which I have already quoted, while fully recognising his talent, alludes to it in the following terms:—"After the death of Mr. Curtis, Edwards continued for years to draw entirely for the *Botanical Magazine*; which taking up but a small proportion of his time, he was noticed and employed by many persons of distinction, who were either fond of science, or lovers of correct and highly finished drawings of plants or animals. He published a work on dogs (*Cynographia Britannica*), in large quarto, on his own account; and it would have been more in unison with common gratitude; and more to his own peace of mind, in his last illness, if he had not been persuaded to begin a work in direct opposition to the *Botanical Magazine*; by which he had risen, and which work, after his patron was dead, was the support of his widow, daughter, and grand-

* Britten and Boulger, *Biogr. Index*, give Edwards's connection with the *Bot. Mag.* as 1799-1814; and B. D. Jackson, in *Dict. Nat. Biogr.*, as commencing in 1798. I may add that the first eight plates of the *Botanical Magazine* are dated 1786, and the first volume 1787.

† Elsewhere spelled Denham.

‡ This is evidently an error so far as the *Flora Londinensis* is concerned, as the dates alone prove.

children. Besides, there was no necessity for such a work, as the public were well satisfied with the *Magazine*, in every respect, without burthening science with another exactly the same except the title; which Mr. Gawler and Mr. Edwards, to distinguish it from *Magazine*, called *Register*, and charged it at a higher price."

It will be observed that Samuel Curtis, in very clumsy prose, lays great stress on Edwards's want of fidelity to his "patron," to whom he gives the prefix of "Mr." throughout, while withholding it from the artist. As a matter of fact, there were already many rivals in the field, and several in some respects superior to the *Botanical Magazine*; and Edwards was probably tired of being "patronised," or of being connected with a publication which was very feebly conducted by William Curtis's immediate successors. Whatever may have been the cause of the severance, Edwards and Ker were joined by Sansom, the engraver, and it must have been a serious matter for the proprietors of the *Magazine*. Edwards illustrated William Curtis's *Lectures on Botany*, his *British Grasses*, his *Companion to the Botanical Magazine*, and other works. W. Botting Hemsley.

A FINE SPECIMEN OF DENDROBIUM NOBILE.

WE have on former occasions afforded our readers illustrations of fine specimens of this beautiful late spring flowering species of *Dendrobe*.

In some cases, notably that of Mr. H. C. Prinsep's plant, figured in the *Gardeners' Chronicle*, June 4, 1892 p. 725, the annual pseudo-bulbs are removed when flowering has ceased, and the plant is induced by a high temperature and a humid atmosphere to make new and strong growths that will flower freely the following year. This method of culture is not, however, that commonly followed, which is to remove only those pseudo-bulbs that have flowered, perhaps to the extent of half to two-thirds of the whole, and subject the plant to ordinary *Dendrobium*-house or stove conditions, and with very good results. As we see in the fig. 130, p. 341, which shows a plant grown by Mr. M. E. Mills, gardener to F. Lloyd, Esq., Coombe House, Croydon.

NURSERY NOTES.

MESSRS. HUGH LOW AND CO.

OWING to the removal of the head-quarters of this firm from the well-known nurseries at Clapton to the newer ones at Bush Hill Park, a mile or two on the London side of Enfield, considerable additions are now being made at the latter place with a view to providing the necessary house-room for the Orchids, &c., that hitherto have been cultivated at Clapton. The London nurseryman may be said to live in fear of the builder. He is ever sensible that sooner or later the builder will render his position untenable, by so surrounding his establishment with houses—and chimneys—that successful plant-growing will be a sheer impossibility. And when, after much expense and worry, he has perforce moved further from the city, the energetic builder follows, and commences his thwarting work afresh. It is several seasons since our last visit to Bush Hill Park, and how the place has changed! Then it was really outside London, and looked as if it had been rejected by the builder, and was struggling on to exist in his absence. Messrs. Low had been at Bush Hill nearly nine years, and their position seemed safe. Now, the village is thronged with masons, the best of the roads are planted with *Rhododendrons* and other flowering shrubs; houses have been built in scores; one cannot get to the nursery without stepping over the clay thrown out to make more foundations, and a large Board-school stands close to the nursery gates. In spite of all this, however, Messrs. Low have "come to stay," at any rate, for years to come; and it will take Mr. Builder a good number of these to oust them. At present, what a contrast the place presents to Clapton! How much more favourable to

* Edwards's second name has been variously given as Teak, Taste, &c., but, in answer to my inquiry, the Rev. R. H. Davies, vicar of Chelsea Old Church, informs me that it is spelt as above on the commemorative tablet in Chelsea Church.

plant cultivation! Undoubtedly the Orchids will thrive better in their new houses in a new nursery.

In company with Mr. Stuart Henry Low, we first inspected the *Odontoglossa* in two new houses, each 150 feet long, at one end terminating in a corridor fitted with rockwork, and suitable for the display of extra-fine specimens in flower. Into this corridor the doors of both houses open, and it will connect them with two other *Odontoglossum*-houses yet to be built. The two houses already noticed contain a very large number of plants indeed, healthy in appearance, and many of them carrying flowers; whilst the varieties frequently were admirable. Of *O. crispum* there was, for instance, a nearly white flower of the virginal type, another with characteristic red blotches, a third with a very fine spike holding fourteen large, firm flowers, the colours being white with yellow disc, and a red

section. There are, however, several very pretty rose-coloured varieties now in bloom. *O. Pescatorei*, *O. cirrhosum*, *O. macranthum*, *O. Halli*, *O. Edwardi* and others were present in numerous good forms. But we must now pass from the corridor above-mentioned into a house of *Cypripeda*, where the number of plants is far from commensurate with the value of them. The choice species, varieties, and hybrids have been gathered together here, and with *C. insignis* Sanderæ and *C. Lawrenceanum* Hyeannum they will be most interesting, as the plants flower. Then there are some of the choicer *Cattleyas*, and a number of plants of *Oncidium Krameri*, one of which, in bloom, is the largest-flowered form we remember to have seen.

We next pass into the hybrid *Dendrobe*-house, where there was little flower, but the plants are apparently very happy. The hybrids *Burfordiense*,

Passing to a group of *Cattleya*-houses we find four structures of about the same length as the *Odontoglossum*-houses. At one end the doors open into a similar corridor, where rockwork is planted with Ferns and Begonias, and the effect relieved with *Cattleyas*, *Cymbidiums*, and other Orchids, also *Anthuriums* in flower. The intention is to arrange the *Cattleyas* in houses in the sequence in which they generally flower, viz., *C. Trianaei*, *C. Mendeli*, *C. Mossiæ*, *C. Gaskelliana*, and *C. labiata*. *C. Mendeli* was bearing a good show of bloom, and Messrs. Low have a fine lot of plants, many of them large enough to be described as specimens. One of these bore eighteen flowers, and made a fine effect. Plants of *Oncidium* species and *Cattleya aurea* were suspended in these houses. Several of the forms of *C. Mendeli* are very attractive.

AN UNUSUALLY-CONSTRUCTED HOUSE.

Beyond this block there is another in course of building, also intended for *Cattleyas*, which will present, when finished, a decided departure from common practice in several features, though there will be some similarity between it and certain continental structures. It will consist of several divisions, and the doors and pathways will be under the eaves of the spans, and the 7-foot stages will extend from eave to eave, under the ridges. This step has been taken owing to Mr. Low's conviction that in the reverse method of arrangement the Orchids are given a second position, the best being occupied by the paths. It is evident that Mr. Low does not fear to place his *Cattleyas* at some distance from the glass, for his system secures the highest part of the house for the plants, and in this case the house is rather high for an Orchid structure, the ridges being 10 feet from the ground. If this does not prejudicially affect the plants, in all other respects they will have the best of it.

Remarked Mr. Low, "I do not believe in such low Orchid-houses; I think that, like human beings, plants want more head-room, and a greater amount of air in the house than they sometimes obtain." This house, with its divisions, is 150 feet long by 60 feet wide. At present the plants which are destined to fill this new structure, are in seven long span-roofed houses of the class usually filled with Palms. A fine lot of plants these are, and, together with a house of large-sized *Lælias*, will give a good account of themselves in the new house, the height of which will, to some extent, tend to make the plants appear smaller than they are. In the centre of one of the houses was a group of tiny plants of various species, every piece, as Mr. Low remarked, having a "past," and adding, "I trust they will have a future too." *Lælia præstans* (Vine House variety), *Dendrobium Harrisonianum* album, *Cattleya Wagneri*, the best piece extant of *C. Mossiæ Arnoldiana*, also the true *C. Reineckiana*, *C. chocoensis* alba; also a white labiata with crimson-streaked lip, and others were remarked.

A story as to how this was acquired, that propagated, and the other saved during a crisis, we listened to with much interest, but these items cannot be reproduced here. Suffice it to say that the hopes, disappointments, surprises, achievements, and failures, constitute the experience of an Orchid-grower's daily life.

OTHER PLANTS IN HOUSES.

Having inspected the arrangements being made for the Clapton Orchids, a hurried glance was taken through the rest of the houses. An enormous number of plants are cultivated, and many of them are supplied almost exclusively to the trade. There were large stocks of the following: Hard-wooded plants, including a fine lot of *Acacias* and greenhouse *Rhododendrons*, *Pelargoniums*, *Palms*, stove climbers, and stove plants generally; *Cyclamens* just raised from seed, *Richardias*, Ferns, *Roses* (an enormous number in pots), *Figs*, *Vines*, *Hydrangeas*, *Carnations*, *Marguerites*, *Gardenias*, &c.

In several of the houses the side stages contained a layer of peat, and the *Palms* were planted out. These had been removed from 3-inch



FIG. 130.—*DENDROBIUM NOBILE*, AT COOMBE HOUSE, CROYDON. (SEE P. 340.)

blotch below. But in the absence of names, it would be useless to describe the varieties, just as it would be in the case of a group of *Azaleas*. In the majority of instances, of course, the plants are now flowering for the first time, and as a collection they are showing very satisfactorily. The Orchid-grower is seriously upset occasionally when seeking to apply this or that theory to actual practice. Here, for instance, was a plant of *O. crispum*, with very high-coloured leaves streaked with deep red, and distinct looking pseudo-bulbs. Said Mr. Low "We have had a job to keep that plant; most people who have seen it have wanted to purchase it, but it looked so much like a new type—perhaps with red or crimson flowers—that we determined to hold it." The plant is in flower now, and Mr. Low realises that it must be sold for very many less guineas than were offered for it. What are the flowers like? They are equal to those of a fine form, but there is no new type. Indeed, instead of the rich colouring that specialists thought they saw in the leaves, the variety is one of the paler coloured

Venus, *Doris*, *Apollo*, &c., and many others of rarity and value were noticed.

From this house we gain the one devoted to the growth of *Phalenopia*, and it is no small cause for satisfaction that such a large number of these delicate plants has been safely moved from Clapton during the winter, and placed into a new house without any appreciable injury or even check. Most of the plants have been re-basketed since their removal, and they have made fresh roots and taken hold of the baskets in such a manner as to give excellent hope for the future. This is a wide house with stages running across the width like desks in a school. There are two stages or shelves in all these Orchid-houses, the first a solid one, which prevents the heat arising to the roots of the plants, and generally covered with shingle, moss, or other moisture-retaining material, and over this a lath shelf upon which the plants are placed. We should mention here a few very healthy plants of *Miltonia Roezli*, a species far too seldom seen in good condition.

pots, and would be allowed to remain in the beds for several months. During that time, said Mr. Low, they make extraordinary progress, not so much in height, but they form a bushy habit and make a bigger, better collar, thus laying the foundation for a much stronger constitution than those possess that have always been kept in pots.

ELMHURST, READING.

THIS charming place, the residence of Geo. W. Palmer, Esq., the senior partner in the well-known firm of Huntley & Palmer, occupies a pleasant position on the high ground on the south side of Reading, from which commanding views are obtained of an extensive stretch of country lying beyond the Thames on the Oxfordshire side. The residence and grounds are somewhat circumscribed in extent, but they are in harmony with the surroundings; the lawn and pleasure-grounds are well furnished with deciduous trees and shrubs, while there are sufficient evergreens to impart a furnished appearance to the place during winter.

A winding piece of rockwork afforded recently a cheering display of many hardy spring-flowers; the blue of *Forget-me-not*, and the violet of *Aubrietia*, blended with the white of *Arabis*, and the yellow of *Alyssum*; in addition there are spring-flowering bulbs, and other subjects. This spot is pleasantly cool in summer, while enough light falls upon the rockwork to enable many summer-blooming plants to flower well. Fringing a shubbery-border close by is a long serpentine line of Dean's coloured *Primroses*, which have bloomed abundantly, and since the rains came have developed into enormous tufts.

Roses under glass are largely grown, for at Elmhurst they are favourite flowers indoors and out. Plants under glass are in good health, and flowering freely. In a pit of specimen plants of pot Roses could be seen a very handsome foliage sport, the leaves being bordered with yellow, which it is Mr. Dockerill's intention to propagate.

In the plant-houses, decorative plants are largely grown. *Crotons*, *Dracenas*, *Palme*, *Caladiums*, *Aralias*, &c., with many flowering subjects, are constantly being produced for service at home and in London.

Melons are a leading feature; a house in full fruiting is a fine sight; there are several leading varieties in excellent character, and the gardener, Mr. Dockerill, calculates upon taking a second crop by extending the leaders to the apex of the house. There are succession-houses also, and in summer some of the Darlington frames now filled with specimen Roses, are also utilised for Melons, and though dependence has to be placed upon solar heat, capital crops are produced. Reading can boast of a number of charming private gardens, and Elmhurst ranks high amongst them. *R. D.*

BELGIUM.

VISIT TO M. F. PAUWELS' ESTABLISHMENT.

I LATELY passed through the houses of M. Florent Pauwels' Establishment at Deurne, near Antwerp, and noted a fine plant of *Epidendrum vitellinum majus*, 18 inches across, with more than thirty racemes. Also other good varieties of this Orchid. I saw further, *Odontoglossum Reichenheimi*, with two flower-stems bearing seventy-five blooms; good varieties of *O. cordatum*; *Miltonia Roezli alba*, with six racemes, bearing buds and seven flowers; *Schomburgkia tibicinis*, with a flower-stem 4 feet long, with fourteen flowers and four buds in a splendid cluster; *Colax jugosus*, a gem; *Calanthe veratrifolia*; *Cattleya Mendeli*, and *C. Schilleriana*; *Lælia purpurata*, with pure white flowers and a fine lip; *Phalænopsis Schilleriana*, *P. leucorhoda*, *P. rosea*, *P. amabilis* with large flowers, and other Orchids.

Anthurium Andreanum, grown from seed, is admirable for its large and splendidly coloured spathe. *Crotons* here develop good and richly-coloured foliage. *Nepenthes Mastersiana* x bears numerous pitchers, one a foot long. M. Pauwels has a fine collection of tree *Peacocks*, some which are now in flower. I would

mention *P. Leopoldi*, *Mme. de Vetry*, *Casse*, *Mariane de l'Inaine*, and *Peonia tenuifolia flore pleno*. A pretty little plant is *Dodecatheon Lemoinei robustum* from *D. integrifolium* x *D. Meadia leucifolium*, obtained in 1889 by MM. Lemoine & Fils of Nancy. *Ch. De Bosschere*.

ANTWERP ROYAL HORTICULTURAL SOCIETY.

This Society proposes, under the presidency of Baron Ed. Osy, of Zegwaart, to organise, during next April, a special horticultural exhibition in the hall of the Antwerp Royal Zoological Society. This show is intended to commemorate the three hundredth anniversary of the birth of the painter A. Van Dyck, who was born at Antwerp, March 22, 1599. The organisers intend that the whole exhibition shall be marked by a strong artistic element. The programme of the exhibition will shortly appear, and will be sent to anyone sending a stamped application to the Society's Secretary, M. Anatole de Cock, 215, Chaussée de Malines, Antwerp.

THE WEEK'S WORK.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

Cucumbers for Pickling.—Select the warmest available position for this crop, and plant them on beds or ridges, prepared as directed in this column last month, in groups of three plants, placed 18 inches apart from each other; or they may be put in one line 4 feet from plant to plant, in rich, light soil. The plants require shade from the sun until they have become established. This may be done by placing large flower-pots over them during the hottest part of the day, and the pots may be used at night also as protection against cold. Frequent waterings and syringings are necessary on dry and warm days, especially so as the plants advance in growth.

Leeks.—The land for this crop should be made rich by liberal dressings of manure. Draw the plants from the seed-bed, and transplant them at distances of 9 inches from plant to plant, and 15 inches between the rows. Make the holes with a dibber 6 inches deep, and do not press any soil tightly about their stems, but drop the plant into the hole, and let a little soil fall on the roots of the plants, just enough to cover the roots. Encourage the growth of Leek-plants required for exhibition by frequently stirring the soil, and giving light dressings of soot and artificial manure, being careful not to overwater them until they are in active growth.

Forced Vegetables.—More air should now be admitted to the pits and frames in which early Carrots, Kidney Beans, Vegetable Marrows, Lettuces, and Radishes are growing. They will require frequent attention to watering and syringing. Make another sowing of French Beans in pits which have been emptied of early Potatoes, and make use of all nearly-spent hot-beds for forwarding Lettuces, Radishes, Mustard and Cress, and Vegetable Marrow plants.

General Work.—Support with stakes any crops that require it, and keep the hoe freely in use in all parts of the kitchen garden. Remove weeds from garden walks, and use the roller on them when they are damp or wet. Endeavour to obtain everything in order for the season by clearing up manure and rubbish-heaps, and digging-in all decayed vegetable matter before hot weather causes it to become a nuisance.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Camellias.—Plants that flowered early will by this date have completed their growth; and in order to prevent a second growth, and to allow the shoots to mature and flower-buds to form, the general surroundings should be drier, but not dry, and as much direct sunshine admitted as the plants will bear without browning or discolouring the leaves. If the plants are in a house facing north, no shading at any part of the day is needed, but in sunny houses a thin scrim shade is usually found useful excepting in old-fashioned houses with small panes of glass. The late-flowered plants will scarcely have finished growing, and should be well syringed daily, night and morning, and encouraged by a humid atmosphere being maintained. Whether in active growth or not, care must be taken that the plants do not suffer from lack of moisture in the soil. When the flower-buds are forming on *Camellias*, the portable plants may in the middle of the present month be stood out-of-doors in a partially-shaded spot, taking care that the

worms cannot get into the pots, and means should be taken to shade the pots from hot sunshine.

Azaleas.—Those plants which finished their growth in heat may be removed to an airy greenhouse, and afforded a slight amount of shade during the hottest hours. If convenient, it is advantageous to keep the plants under glass, it being then easier to control the degree of temperature and the amount of moisture the plants receive. Should it, however, be necessary to place the plants outdoors, this must not be done before they are hardened off, and the place occupied by the plants during the summer months should be partially shaded from the sun, and the pots plunged in coal-ashes or screened by pieces of cork, &c. Those *Azaleas* which flowered late should be kept in a warm moist house. Thrips often infest *Azaleas*, disfiguring the foliage and causing it to drop, and spoiling the growth. The best remedy is Richards' XL All, following its use with vigorous syringing.

Ericas.—When it is necessary to retard any of these plants, stand them outside and protect from bright sunshine, placing frame-lights over them, so as to throw off the rain, taking the utmost care that the soil does not become dry. *Ericas* which are growing should be lightly shaded during the hottest part of the day, and the base upon which the pots stand kept in a moist state. Any shoots which seem to be growing at the expense of others on the same plant should have the point pinched out, or be drawn down towards the rim of the pots.

Epacris.—Those plants which flowered earliest will now be growing freely, and should be shaded when the sunshine is very ardent; and as the plants fail to flower satisfactorily if the shoots are drawn by over-shading, the latter must be studiously avoided, and plenty of air afforded the plants by day, and some also at night, the plants being syringed once or twice daily, according to the weather. When a plant requires water, afford it liberally, but avoid either extreme. Plants which flowered late will now be growing freely, and any repotting that may be necessary should be carried out. The best kind of compost consists of good, hard peat and sand; the pots should be clean or new ones; the crocking should be efficient and abundant, and consist of a lower layer of big crocks, and an upper one of fine ones. In repotting, the roots at the sides of the ball should not be much disturbed, and if the crocks are embedded, leave them alone; do not give large shifts or use sifted soil, but take it as it comes, and work it down between the pot sides and the ball with a thin potting-stick, making it firm as the filling proceeds, and finish off smoothly with a slight inclination from the sides to the centre, that part of the ball always having a tendency to become dry, and thus causes the death of the roots thereabouts. Let the space left for receiving water be ample in each case. Never afford water after the first application on repotting them without first tapping the pots to ascertain their condition. Growing plants should be syringed early in the morning. *Epacris* grow admirably in deep cold frames, resting on coal-ashes, and after growth is finished, unless the plants are very small, they may be plunged in coal-ashes out-of-doors.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Shrubs recently planted.—Shrubs of most species which were planted during the winter, will benefit by having the soil frequently hoed round about and among them, not only for the destruction of weeds, but to aerate the soil. The late rains have been of great benefit to these plants, but the cold experienced at night renders growth very slow; and the season which at one time promised to be an early one, will be very backward.

Bulbs.—Such of these as have been used in spring flower gardens, must in most cases now be lifted to make room for the summer bedders. When the bulbs are lifted, lay them out singly in a shed, provided they are ripe, to dry, afterwards storing them in sand till required again for planting.

Perennial plants.—*Aubrietias*, *Alyssum saxatile*, *Bellis perennis*, *Phlox reptans* and other dwarf species, and *Iberis sempervirens*, as the plants are lifted they should be divided if an increase be desired, and replanted in lines at 1 foot apart in the reserve garden. *Myosotis* in variety, *Silene pendula*, and *Wallflowers* should not be kept unless the latter be double-flowered; seedlings affording more satisfactory results.

Statice Saccorovi.—For planting in the front of borders of herbaceous perennials this *Statice* is a very suitable plant, the best perhaps of all the annual *Statices*. The flower-spikes, which are branching,

are of a bright-rose colour, and several are borne on a plant, stand well above the foliage, in fact the foliage is of very small size in comparison with the flower-spike, which grows to the height of 1 foot. The plant continues in bloom for a considerable period of time, as each spike will last in flower for several weeks. The spikes also last when cut for a long time. It is a hardy annual worthy of general cultivation.

Bedding-out.—All Asters, Antirrhinums, Petunias, Marigolds, Pyrethrums, Golden Feathers, Lobelias, Stocks, and Zinnias, should be planted out without further delay, but it may be prudent to wait a few days longer before planting out the more tender subjects, or till the weather takes a favourable turn.

General Remarks.—Sweet Peas, when 3 or 4 inches high, should be moulded-up, and provided with neat, well-feathered boughs of the same height as that to which the plants are likely to attain. The soil alongside the rows or circles should be loosened. Lilies of all kinds, as growth proceeds, should be neatly staked, especially *L. candidum*, *auratum*, *croceum*, and *longiflorum*, as should *Pæonies*. Pentstemons which have been raised from seed may now be planted where they are intended to flower, the soil being first liberally manured. The seedlings of annuals sown last month should be well thinned-out, in accordance with the requirements of each. Newly-turfed lawns will require abundant rolling, and croquet and tennis-grounds should have similar attention, and the spudding-out of deep-rooting weeds, Daisies, &c., performed.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorking.

The East Indian House.—Species of *Aërides*, *Saccabium*, *Angraecum*, *Sarcanthus*, *Vanda*, and others, that are potted in crocks and surfaced with sphagnum-moss, must be watered with much care now that they are making growth. It is necessary to afford just sufficient water only to keep the moss in a state of healthy growth. The roots inside the pot or basket will quickly decay if the material be kept constantly saturated. The plants are now developing large, fleshy, aerial roots, and these should be examined occasionally, with a view to guiding them down into the compost. The old roots that are long enough should be carefully pegged down on the surface, and the young roots will then the better enter the moss. These aerial-rooting species require an evenly humid atmosphere, but if grown in a too high temperature and a saturated atmosphere, with insufficient light and air, their foliage will become spotted and unhealthy. Those who have seen the remarkable new *Eulophiella Peetersiana*—figured in the *Gardeners' Chronicle* on April 2, 1898—in bloom, consider it to be one of the most beautiful of Orchids. When its cultural requirements are properly understood, and the plant has become established, it will be much sought after for exhibition purposes and for floral arrangements. We may yet learn something more of its requirements, but my present experience shows it to be tolerably easy of cultivation if treated with ordinary discretion. Immediately the imported pieces arrive they should be placed in pots, and firmly fixed with clean crocks and charcoal, then stood upon the stage in a Cattleya-house temperature, and be kept well supplied with moisture by pouring water through the crocks several times a day, taking care not to wet the bulb or rhizome. The plants will soon commence to grow, and then it will be necessary to afford rooting material. Having a rambling habit, rather large pans or teak-wood baskets are preferable to pots, and these should be large enough to allow the roots to spread freely in all directions. They should be filled to about one-half of their depth with drainage, over this should be placed a layer of sphagnum-moss, and the basket filled nearly up to the rim with peat and moss in about equal parts, mixing with it a moderate quantity of broken crocks. There is no necessity to raise the plant above the rim, but lay it upon the compost, with the base of the young growth just touching the soil. For the first few weeks keep the surface of the compost just moist by sprinkling it occasionally with tepid rain-water, but allow no water to fall on the plant. When new roots are seen pushing from the rhizome, prick in a few living heads of sphagnum-moss over the surface of the compost, and water more liberally. Place them in a hot moist corner of this house, where they may be conveniently shaded from the sun at all times. During the winter months, when the temperature is low, the plant should be removed to the warmest and driest corner, but it must be kept well watered at the root. To fully explain this, I may mention that at the beginning of the past winter our plant was in

the ordinary plant-stove, where the night temperature frequently fell to 58° and 60°. Very soon the leaves commenced to spot, the plant was therefore immediately removed to another house where the thermometer rarely falls below 65°. The benefit of the higher temperature was soon apparent, for the dangerous spotting was checked, and eventually the plant produced its welcome flower spike.

The Cattleya-house.—*C. gigas* is now showing its flower-buds, and will require to be kept fairly moist at the root, and even those that have failed to produce spikes must receive generous treatment. When the growths have become fully completed, and the spikes are removed, gradually expose the plants to more air and sunshine, because the better they are matured, the more abundant will they bloom next year. *C. Rex*, *C. Dowiana* and its variety *auræa*, should be kept at the warmest end of the house, and be carefully supplied with water until the flowers open. When the growth is fully completed, treat the plants as recommended for *C. gigas*. The best time to afford fresh potting material to these *Cattleyas* is when new roots are seen pushing from the base of the current season's growth.

HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Strawberries.—In the warmer districts early varieties will now require protection for the fruit, and the nets should be placed over the beds before the blackbirds and thrushes get at them, the finest fruits usually colouring first, and being the first to suffer from their attention. Before the nets are put on, the trusses of fruit should be raised on to the mulching, otherwise in wet weather they soon decay; moreover, all large weeds should be pulled up and removed forthwith. It is a saving of time and of the netting if the latter can be suspended or stretched on stakes 6 feet high, with a knob formed of a hayband wound round at the top, the stakes being fixed firmly in the ground at distances of 10 feet, and the net fixed at the sides with wooden pegs. With nets fixed in this manner, the fruits can be gathered without disturbing the net except at one end of the bed. Sometimes a border skirting a wall may be covered by means of nets fixed to the top of the wall, and to a row of stakes placed next to the walk. Late Strawberries, or those wanted for special purposes, should have the smallest berries removed, and be afforded diluted liquid-manure, applied to the soil without letting any of it come in contact with the leaves or fruits, applying it twice or thrice a week till the fruits begin to colour. In order to obtain strong runners, healthy young plants must be selected, the fruit trusses removed, and encouraged to grow vigorously by applying liquid manure in dry weather. By following this method, extra strong plants can be obtained that will afford large fruits the following season, but there must be no delay in layering the runners, and in planting them as soon as they are well rooted.

Bush Fruit.—Let close attention be paid to the clearing of the Gooseberry bushes of the larvae of the Gooseberry saw-fly, either by means of the garden-hose or engine, by dusting with Hellebore-powder, or by hand-picking; and later on, remove the soil under such bushes as were infested, and replace it with fresh from a distant quarter of the garden. Failure to do this will result in an attack next year. The Black Currant-mite is troublesome in some gardens, and all affected shoots or the tips of them, should be cut off and burnt forthwith.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Melons.—Make a final sowing, to raise plants for autumn fruiting, and as soon as the seedlings show the first rough leaf, pot them up singly into 2½-inch or 3-inch pots. Remove the points of the leading shoots of plants about to flower as soon as they have furnished the requisite space, and stop the side shoots at two leaves beyond each fruit, all succeeding side shoots being stopped at the first leaf. About noon each day go over the flowers already open, with a view to setting them, and discontinue syringing until a crop of fruits has set, only damping down in the meantime the bare surfaces of the house once on each bright day. When the house has been closed in the afternoon is the best time to do this. The present dull and cold weather obliges us to use more fire-heat than is usual at this date. The temperatures should be 70° by night and 75° by day, with a rise of 10° to 15° from sunheat. Afford ventilation by degrees, first before the temperature exceeds 80°, and again before it rises to 85°. Close the house early each afternoon, and if the temperature

rises to 90° no harm will be done. Plants now swelling fruit require to be liberally watered when the soil shows signs of dryness, and occasionally liquid-manure may be used for the purpose. Checks and cracking to swelling fruits may be caused by allowing the soil to become dry, or by removing too much foliage at one time from the plants. In cases of fruit now colouring, syringing should be discontinued, and more air given. Give just sufficient root-waterings to keep the foliage green and healthy.

Cucumbers.—Plant these out in a house or in frames, as recommended for Melons. Cucumbers require lighter and richer soil, and it may be given in less quantity, so that additions may be made afterwards. That they be given plenty of water and frequent syringings is important, and air should be admitted with care, and when the soil last added is full of roots, another layer of 2 inches deep may be given, using three parts of light loam to one of old Mushroom-bed manure. Afford water liberally whenever the soil shows signs of dryness, with manure added to the water occasionally. Syringe each morning that is bright, and again in the afternoon at shutting up time should the sun be warm. Frequently thin-out the old worn-out weed and leaves, removing surplus young shoots, and stop others at the third leaf.

Tomatoes that have been growing in a limited quantity of poor soil to prevent over-luxuriant growth while in flower, and induce the blooms to set, may now, that a crop is set, be given a top-dressing of three-parts loamy pot-soil, and one of old mortar-rubbish, and a little concentrated manure added to it. Plants that have grown to the limit of the space allotted to them may be stopped, and attend to the taking off of the side-shoots as frequently as required. Seeds may now be sown to produce plants for autumn and early winter-fruiting. The best variety I know for this purpose is *Conqueror*. Sow the seeds thinly in pots or pans in light soil, and pot them off into 3-inch pots as soon as they have made the first rough leaves. Place them in a cold, freely-ventilated frame or pit, close to the glass, and exposed to the full sun.

THE APIARY.

By EXPERT.

Too many Drones cause Swarming.—They say that when Louis XIV. was contemplating war, his Prime Minister, Colbert, said to him, "Sire, to make war we need, firstly, money; secondly, money; thirdly, money." Well, to raise honey successfully and prevent swarming, we need, firstly, to prevent drone-rearing; secondly, to prevent drone-rearing; and thirdly, to prevent drone-rearing. This is not all we need, as money is not all we need in war; but it is one of the great needs that are too often disregarded. The drones are expensive to the bee-keeper, more so than many believe, and unprofitable and annoying to the bees. They are in the way, being out of the hive a couple of hours each day, get in the path of the bees at the busiest time, and keep the hive hot when it most needs to be cool. One frame full of drone-comb will furnish all the drones that are needed for a full apiary of 100 colonies. The others should be removed from the hives in early spring and replaced by worker-comb. True, some people will tell you that if you remove the drone-comb, the bees will cut down worker-comb and put drone-comb in its place. Do not listen to them. One great drawback to progress lies in the fact that many people go by hearsay and not by their own experiments. Let our readers take out all the drone-comb that they see in all their hives except in one or two of the best colonies (they will be sure to leave small patches of it here and there, but this is unimportant), and they will find it much cheaper than rearing drones and using some queen-trap or other to catch them afterwards. They will also find that their bees will swarm much less, provided they also try to keep the hives well shaded, with enough ventilation to prevent the bees from lying out in the hottest weather, and room enough for the bees to harvest as large a crop as may be expected. We speak of ventilation. Did you ever stop to think that when the bees of a hive are lying out in clusters during a good flow of honey it is because they feel ill at ease inside? This is one reason why we are in favour of loose-bottom boards. We want to be able to raise the hive sufficiently off its bottom to do away with the clusters of bees that lie idle on the outside. We want to give them enough air to enable them to make the whole hive comfortable in any part of it. The fewer drone-traps, queen-excluders, partitions, separators, &c., you have in your hives, the better the bees will feel, and the fewer swarms you will have.

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, JUNE 8 { Royal Cornwall Agricultural Society's Show (2 days).
 FRIDAY, JUNE 10—Royal Botanic Society (Lecture).
 SATURDAY, JUNE 11 { Royal Botanic Society, General Meeting.

SALE.

FRIDAY, JUNE 10 { Imported and Established Orchids from various sources at Prothroce and Morris's Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—59.9°.

ACTUAL TEMPERATURES:—

LONDON.—June 1 (6 P.M.): Max., 58°; Min., 43°.

PROVINCES.—June 1 (6 P.M.): Max., 52°, S. W. Ireland and Scotland; Min., 45°, N. E. England.

Rain, local snowstorms; thunder.

WE are glad to learn that the Treasurer is well satisfied with the financial results, so far as they are yet known. The deepest concern, however, is felt at the loss of the valuable collection of Orchids exhibited by M. JULES HYE, of Ghent. The loss would have been serious enough had it befallen a fellow-countryman, but that it should have occurred to a distinguished foreigner, a member of a society which recently received us at Ghent with such cordial and splendid hospitality, causes the greatest distress. It appears that about 9 P.M. on Friday evening, when exhibitors were packing up and removing their plants, Mr. HYE's plants were seen by Mr. HYE's assistant, as well as by the society's superintendent. Mr. HYE's custodian then left the tent, and on his return about 10 P.M. the Orchids were missing. The plants included the very rare *Odontoglossum luteo-Vuylstekeanum*, and three other rare *Odontoglossums*; *Lælia Latona*, *Lælia-Cattleya* hybrid (*C. Lawrenceana* × *L. cinnabarina*), and *Miltoniopsis Bleuana rosea*. Telegraphic enquiries were made to other exhibitors under the impression that they might have been packed up by accident with some other collection, but up to this time nothing has been heard of the missing plants, for the return of which a reward is offered in our advertising columns.

Baseless surmise is worse than useless. The calamity is evidently mainly attributable to the exhibitor himself, who left his plants unguarded three or four hours after the show had closed. The Society is thus free from all responsibility in a technical sense; how far it can be absolved morally remains to be seen. All we know is, that the loss is felt as a public disgrace, and the more keenly in the circumstances we have mentioned. Let us hope that the affair may prove to have been accidental.

We have received the following letter concerning the matter from Messrs. JAMES VEITCH & SONS, and refer our readers to our advertising columns, where a reward is offered for the recovery of the plants:—

"At the Temple Show, M. JULES HYE, of Ghent, lost the very valuable Orchids he exhibited, and no trace can be ascertained of their whereabouts. They were seen by him in the tent soon after 9 P.M. on the Friday, but they had disappeared by 10 o'clock, and he is naturally in great distress. Would you make this great loss known through your columns in this week's issue?"

In connection with this exhibition, we give in this issue three views of groups taken in the tents, which were sufficiently described in our last issue. Numerous new and interesting plants were also figured in that number.

Cocoa.

THE extensive culture of Cocoa (*Theobroma*) in Ceylon, is being seriously interfered with by the attack of a canker which greatly reduces the yield. The planters, remembering the calamity that befell the Coffee, were alarmed for the future of the Cocoa cultivation; they submitted a statement to the Governor, and sought the assistance of the Colonial Office at home in investigating the cause and possible cure of the canker. Government help being refused, the planters themselves resolved to undertake the inquiry, and engaged Mr. J. B. CARRUTHERS to visit Ceylon. Mr. CARRUTHERS had previously paid considerable attention to the disease of the Larch and other trees, and was acquainted with the requisite methods of investigation, and the conditions under which the parasitic fungi attack trees. He arrived in Ceylon after the middle of December, before the close of the rainy season. He at once proceeded to study the affected trees, and, after three months' close microscopic investigation, he has submitted to the Planters' Association an interesting interim report.

He has determined that the roots and the foliage are free from disease, but that the trunk and the fruit have been attacked by two different fungi, the mycelium of which abounds in the diseased parts. He has separated the accidental fungi that were found on the injured portions. Having obtained the fructification of the species connected with the disease, he has been able to determine their affinities. He has made cultures of them, and from these cultures he has produced the diseases in the stem and on the pod, thus conclusively proving them to be the cause of the diseases. He is continuing to work at the life-history of the two fungi, and to make experiments, with the view of determining how far it may be possible to improve the conditions of culture, or by applications to prevent the germination of the spores in the hope that the injuries caused by these fungi may be reduced, if they cannot be altogether remedied.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The Fifty-ninth Anniversary Festival Dinner of this Institution will be held on Wednesday next, June 8, at the Hôtel Métropole, when we hope the supporters of this deserving charity will muster in strong force. The DEAN OF ROCHESTER—that well-known horticultural enthusiast—has intimated his intention to attend, and those of our readers who desire to be present on this occasion should communicate with the Secretary, at 50, Parliament Street, W., without delay.

ROYAL GARDENERS' ORPHAN FUND, MAY 26.—A meeting of the Committee was held this day, when the following special receipts were reported:—His Grace the Duke of Rutland, per Mr. Divers, £5; Sir R. Hargreaves Rogers, £5 5s.; Mr. Witty, Nunhead Cemetery, £1 15s. 6d.; Francis Robinson, £1; the Hugh Low Cricket Club, sale of Bats, Balls, &c., £3 7s.; receipts, sale of gold ring, received from an anonymous lover of flowers, £1 6s.

THE MARKET GARDENERS', NURSERYMEN, AND FARMERS' ASSOCIATION.—Agricultural Rates Act, 1896. Rating of Glasshouses: SMITH AND OTHERS v. RICHMOND. A second list of sums paid or promised, amounting to £43 19s., in aid of Fund for Appeal to House of Lords has been received. The Association has determined to proceed with the Appeal, although the response to the application for funds has not been so general as the importance of the matter demands. Assistance is solicited from the numerous growers who have not yet contributed.—GEORGE MONRO, Hon. Treasurer, 32, King Street, Covent Garden, W.C.

"THE FRUIT-GROWERS' ANNUAL."—The subtitle of this book is the "Market-senders' Guide," and the editor is Mr. SAMPSON MORGAN, who has had twenty years' experience of the wholesale fruit markets; the reliability of the information given can therefore be depended upon. The articles included deal with such topics as:—Chrysanthemum Notes, Science Apple-culture, Foreign and Colonial Mails, Fruit Charts, Strawberry Culture, Shows for the Year, Peas June to November, Railway Rates, Channel Island Rates, Imports and Exports for the Year, Fruit-growing Movement, Men of the Market, Injurious Insects, Forced Strawberries, and various biographical notices of well-known growers and salesmen. It may be had from ILIFFE & SON, 3, St. Bride Street.

CEARA RUBBER.—The article on this subject in the last number of the *Kew Bulletin*, n. 133, p. 1, will be read with much interest by tropical planters, as the tree *Manihot Glaziovii* is easily propagated by seeds or by cuttings, is very hardy, a fast grower, not subject to insect or fungus attack, and thrives on poor soil. It produces rubber of good quality, for which there is a large demand, and it is, therefore, recommended that the tree be planted over large areas in a dry climate and on poor stony soil.

BLACK ROSES.—The St. Petersburg *Novosti* states that Mr. FETISOFF, an amateur botanist in Voronezh has succeeded after ten years' persistent experiments, in cultivating Roses of a pure black colour. These new black Roses, it is further stated, will be exhibited shortly in London.

FLORA OF MONGOLIA.—Mrs. LITLEDAL, in a recent journey through Siberia to North Western Mongolia, made an excellent collection of dried plants, which have been presented to Kew. The *Bulletin* speaks of them as admirably prepared.

MR. GLADSTONE AND CLUMBER.—When this great estate of the Clinton family was passing through the throes of a severe financial ordeal a good many years ago, Mr. GLADSTONE was one of the trustees, who finally brought Clumber safely out of the fire, and freed it for the benefit of present owners. During a portion of that period of depression Mr. MILLER, now of Ruxley Lodge, Esher, was gardener at Clumber, and thus he became very familiar with the late great statesman. He tells of one visit of Mr. GLADSTONE and a fellow trustee with the agent to the estate. Mr. MILLER was then engaged in blasting with dynamite old tree-stumps or roots left in the ground. The process was new to the statesman, and a charge was exploded in his presence. Mr. MILLER placed his visitors at a safe distance from the scene of operation, but not before they had seen the process of boring a deep hole in the bole with an auger, then charging it with the dynamite obtained from the estate collieries, and firing the fuse with the aid of a percussion-cap. "How do you, after firing the fuse, succeed in getting out of danger?" said Mr. GLADSTONE. "You will see, sir," said Mr. MILLER, having put the visitors at a safe distance, the point of the fuse was ignited, which at once began to hiss loudly, and the operator ran. The charge exploded in 1½ minutes, so that 100 yards was easily placed between the source of danger and the operator. In this case the root was not only lifted clean out of the ground, but was riven into several pieces. Sometimes, if the charge be very heavy, the boles are torn into thousands of tiny strips. On another occasion Mr. GLADSTONE took great interest in the transplanting of very large Yew trees on the estate, with the aid of a "Barrou" machine; and on another visit, when he found Mr. MILLER pruning wall trees, remarked that it was not such hard work as tree-felling, to which the gardener rejoined, perhaps not, but it was a good deal more meritorious.

PELICANS.—The Royal Gardens, Kew, have been supplied with six pelicans by Admiral BLOMFIELD, as we learn from the *Kew Bulletin*. It is to be hoped the birds will not be, like their predecessor, shot by ignorant gamekeepers.



FIG. 131.—GROUP OF PHYLLOCACTUS EXHIBITED BY MESSRS. J. VEITCH AND SONS AT THE TEMPLE SHOW.



FIG. 132.—GROUP OF HARDY FLOWERING PLANTS, ETC., EXHIBITED BY MESSRS. J. VEITCH AND SONS AT THE TEMPLE SHOW.

GREENWICH PARK AND KEW GARDENS.—By order of the First Commissioner of Works, in accordance with the commands of Her Majesty the QUEEN, the grounds of the Ranger's Lodge at Greenwich and the Royal Palace at Kew will henceforward be opened to the public; and the grounds of the QUEEN'S Cottage at Kew were on Saturday, May 21, formally added to Kew Gardens.

JUGLANS REGIA VAR. RUBRA.—The May number of the *Wiener Illustrirte Garten Zeitung* contains a coloured plate of a flowering shoot, mature leaf, and a nut in three positions, one of which shows the current-red skinned kernel. It was first mentioned by JOHANN HERMANN KNOOP in his work *Fructologia of Beschryving der Vrugtbomen en Vrugten, &c.*, Senwarden in 1763. The variety has almost disappeared from European cultivation, and is probably only now to be found in the southern parts of the Austrian Empire, and in Slavonia. It is a comparatively small tree, soon coming into bearing; but not so hardy as the commoner Walnuts, and to this circumstance is due the fact of its general disappearance. For the milder parts of Britain this variety should be found well suited, and should it be found persistently spring tender, as is also the type, there is still the reddish-green foliage to recommend it as a picture tree.

ANOTHER FIRE IN SCOTLAND.—We regret to hear that the well-known establishment of Messrs. DRUMMOND & SON, seedsmen, Stirling, was destroyed by fire on the 29th ult. The damage is estimated at £10,000.

ERITRICHUM NANUM.—M. H. CORREYON writes from the Geneva Jardin Alpin d'Acclimatation as follows:—"I send you with this a plant of *Eritrichium nanum*, the buds of which are beginning to expand. It is taken haphazard from a border where now are flowering as well as if among the high Alps, *Androsace glacialis*, *A. Charpentieri*, *A. pyrenaica*, *A. imbricata*, *A. pubescens*, *A. helvetica*, *Petrocallis pyrenaica*, and the *Eritrichium*. As you may see, the plant is young, vigorous, and covered with buds. The foliage retains the characteristics of that of plants from high elevations; it is quite as downy, and not increased in size. The flowers remain quite sessile, which is a peculiarity to be especially noted. Rock plants from high altitudes are characterised by having quite stemless flowers. This gives beauty to clumps of *Androsace*, *Saxifraga*, *Draba*, &c., whose stems, closely packed together, form a round ball absolutely covered with flowers, so that beneath this cloud of brilliant blossoms the foliage is not to be seen. To preserve this low and flower-covered form is the desire of the alpine gardener. For more than fifteen years I sought the secret of so doing, and in 1896 I for the first time discovered it. The *Eritrichium* which I send, a two-year-old seedling, will prove to you that I have been successful. Briefly stated, what I have found is, that the plants from the higher Alps suffer, with us, from over-nutrition, owing to the richness of the soil which is far too nourishing for them. *Eritrichium*—this I mention because I have forwarded the plant, but I could find other examples—is more beautiful and flowers better when growing in a soil poor in nutritive matters. In the *débris* of rocks, in the fine sand of the moraines, or in fissures of the rocks, these plants do best. We therefore sowed the *Eritrichium* seeds in sand, with a very little peat and sifted sphagnum, and pricked them out into a soil still lighter, but mixed with crushed pebbles. In the autumn we set them in granitic sand and left them to pass the winter dry, never giving water. They then lost the appearance of living plants, and were as if dried. But the centre of the clumps are now green and flourishing. In early spring we transplanted them to rather larger pots, half filled with drainage, and for the rest, with light soil, half sand, half peat. The surface of the pot was covered with broken pebbles, and the plants exposed to sunshine and damp. They grew rapidly green, and soon were covered with buds, well preserving the characteristics of the species. We anticipated the flowering season by four months, as it is not until August that *Eritrichium* and the majority of plants now flowering in

the frame bloom under natural conditions, where also they are, for three months at least, covered with snow." The plant sent is a little gem, in a very healthy state, and uninjured by its long transit in a close wooden box.

ROBERT BROWN.—The Bentham Trustees have, as we are told in this *Kew Bulletin*, presented to the collection of portraits, one of the great botanists painted for LADY FRANKLIN about 1856.

SUGGESTIONS FOR THE MANURING OF VARIOUS CROPS.—Peas and Beans are leguminous crops, with which are included Vetches, Clovers, Sainfoin, and Lucerne. These do not require nitrogenous manures, as, by means of the "nodules" present on their roots, they have the power of making use of the free nitrogen of the air as plant-food. Manures, therefore, like nitrate of soda and sulphate of ammonia, are not required for these crops; phosphates and potash, however, especially the latter, are of considerable service. Lime also is generally beneficial, and farmyard manure is always valuable. A useful dressing per acre for Beans or Peas might be—10 to 15 tons farmyard manure 3 cwt. kainit, 2 cwt. superphosphate. Where the soil is heavy and rather damp, and especially if it is poor in lime, 4 cwt. basic slag per acre might be advantageously substituted for 2 cwt. superphosphate. Swedes, Turnips, and Rape are generally most benefited by an application of phosphatic manures. The following may be a useful dressing per acre:—Ten to 15 tons farmyard manure, 2½ to 4 cwt. superphosphate. If no farmyard manure is applied, the quantity of superphosphate may be slightly increased, and either 1 cwt. nitrate of soda as a top-dressing, or 2 cwt. dried blood at the time of sowing would be a useful addition. Basic slag may be substituted for superphosphate on damper soils, which are deficient in lime; on light soils 1 to 2 cwt. kainit per acre is a useful addition to the above manures. The farmyard manure may be applied during the previous autumn or winter, or at the time of sowing; the phosphatic manures preferably at the time of sowing, and the kainit in early winter. Swedes and Turnips do not respond so well to liberal manuring in the south and south-east of England as they do in the north and north-west. Cabbages do well with a liberal application of farmyard manure. The following is a useful dressing per acre:—Fifteen to 25 tons farmyard manure, 2 cwt. nitrate of soda, 3 cwt. superphosphate, 2 cwt. kainit. *Fourth Annual Report on Field Experiments, University Extension College, Reading (Douglas A. Gilchrist).*

PRESENTATION.—After 12 years faithful service, Mr. J. GRAY, head gardener at Bodorgan, Anglesea, severed his connection with that place a fortnight ago. Before leaving, Mr. F. WALTON, the foreman in the gardens, on behalf of himself and others who had served under Mr. GRAY, presented him with a case of handsome carvers, bearing the following inscription:—"Presented to Mr. J. GRAY, as a token of respect, by the assistant gardeners of Bodorgan upon his leaving Bodorgan, Anglesea, North Wales, May, 1898."

TOOGOOD'S "CALENDAR OF SOWING AND PLANTING."—We will not say that this little publication is too good, but it is assuredly very useful for amateurs, whilst professional gardeners will be glad to possess it for purposes of reference. It may be had from Messrs. Toogood & Sons, of Southampton.

"GULF OF BOTHNIA" S.S. WITH FRUIT FROM THE ANTIPODES.—This ship entered Victoria Docks, London, on May 16. She brought 7000 cases of Apples from Tasmania; also 1545 cases of Apples from Australia. Part of the latter came by "new experiment" in cool storage, and turned out rather unsatisfactory.

ST. PETERSBURG HORTICULTURAL EXHIBITION.—The Imperial Horticultural Society of St. Petersburg will hold an international exhibition next year, under the patronage of the EMPEROR. The exhibition will be divided into two sections—a flower

and plant show, open from May 17, 1899, for ten days, and an autumn fruit show, to be held for an equally long period. The exhibition will be located in the Tauride Palace and the celebrated gardens around it, which will be specially arranged for the purpose.

SIR THOMAS DYKE ACLAND, BART.—The announcement of the death of this venerated country gentleman on the 29th ult. will be received with great regret, though, from the efflux of time, the event was not unlooked for. The deceased gentleman was a scholar, but by no means one of narrow sympathies; on the contrary, the catholicity of his views and the versatility of his powers were remarkable. He was educated at Christchurch, Oxford, with GLADSTONE, a kindred spirit, with whom a close friendship existed to the last, and attained the honour of a Double-first. He took a great part in agricultural matters, and was ever to the fore in questions of education and healthy progress. He was an occasional correspondent of the *Gardeners' Chronicle*. At Killerton was raised from cones produced in this country the first seedling Deodar. This plant was transferred to Kew, where it now forms a fine tree.

"HOOKER'S ICONES PLANTARUM."—The last-issued part, dated April, 1898, contains numerous descriptions and illustrations, mostly of plants of botanical interest only. Some of the plates were destroyed in a fire that occurred at the lithographers, but they will be reproduced in a later part. *Passiflora fuchsiflora*, Hemsley, is a species from British Guiana, which it would be desirable to introduce into British gardens. The *Passifloras* of this region need revision, as so many new forms have been discovered of late years. *Tachadenus elatus*, Hemsley, is a *Gentianad*, with very long corolla-tube and spreading limb, which it would be also desirable to introduce if we could grow it when we had it!

REPORT OF FIELD EXPERIMENTS AT READING UNIVERSITY EXTENSION COLLEGE.—The fourth annual report on field experiments made in connection with the University Extension College, Reading, is now before us, and includes a chronicle of the trials made in Berkshire, Dorsetshire, Hampshire, and Oxfordshire; a summary of general results, papers on manuring of crops, and compositions of foods and feeding stuffs, and notes on manures. The report is published under the authority of Mr. DOUGLAS A. GILCHRIST, Director of the Agricultural Department of the College.

QUARANTINE FOR PLANTS.—Alluding to the steps taken to prevent the intrusion of the San José Scale, our contemporary, *Mechanics' Monthly*, has the following wise remarks:—"But the truth is, the Scale does not need looking after—not by law, for the Scale will travel in spite of all law and its useless expenditures. Cultivators should be encouraged to look for and destroy the Scale. It is as sensible to make laws that there should be quarantines against weeds as against insects. Like love, they laugh at lock-smiths."

EUCALYPTUS GLOBULUS is in flower in the garden at Huntley, Bishops Teignton, as we learn from the gardener, Mr. BEST. We lately saw two young trees of this species at Buckland, near Dover. One was suffering if not dead, the other was as well as could be expected in the locality.

HOME CORRESPONDENCE.

CULTURE AND VARIATION.—Mr. Drusry has referred to one of my books (*Gardeners' Chronicle*, May 21, p. 307), *The Origin of Plant Structures by Self-adaptation to the Environment*, and in comparing definite with indefinite variations has—as it appears to me—missed Darwin's meaning. Prof. Romanes used the word "indiscriminate," but he only meant what Darwin signified by "indefinite." There may be not only 1,119 varieties of wild Ferns but thousands more, but they are not the seedlings of one Fern; but as Mr. Drusry says, they are generally found as single individuals, i.e., they are definite variations.

Darwin, in stating what he believed to be the sources of new varieties and their species, refers them to two things: first, individual differences among the plants of the same species. These, however, are quite incapable of giving rise to new varieties, as I have shown elsewhere (*Natural Science*, vol. vi., p. 385, "Individual Variations"); secondly, if a plant migrate, so that it is subjected to the direct action of changed conditions, then he says, "Changed conditions act directly and definitely on the organisation, so that all or nearly all the individuals of the same species thus exposed become modified in the same manner. . . . In most cases, however, of the direct action of changed conditions . . . indefinite modifications are the result" (*An. and Pl.*, &c., ii., p. 418). Unfortunately, he gives no examples, and it is this latter statement that I venture to call in question. That Darwin was perfectly aware of the definite action of changed conditions of life is clear from the above, and several other passages, but he never followed the subject up, and so contents himself with such an observation as the following:—"In separated districts, long-continued ex-

frame in ordinary garden or field-soil, placed within 9 inches of the glass, in the same way as bedding *Calceolarias*, and treated in like manner during the winter and spring months, receiving plenty of air—in fact, drawing the lights off during the day in mild weather, and affording protection during frost. The best way for "A. E." to proceed with a view to attaining the object in view, is to plant-out the batch of cuttings which he has just struck in the manner described in my note under the heading of "Market-gardening," published in the *Gardeners' Chronicle*, May 14 last, and take the necessary number of cuttings from these plants at the end of the month of June, or early in July, selecting short-jointed cuttings from 2 to 3 inches long for the purpose. These may be dibbled-in 3 inches apart in a frame (improved or otherwise) under hand-lights, or singly in 3-inch pots, which may be stood close together on coal-ashes in a sheltered position, if a frame is not available having a south or west aspect, shading them for a few hours during the heat of the day, and damping them overhead in the afternoon to freshen up the cuttings, as well as to keep the soil moist

fairly firm. This done, stand the plants on coal-ashes in a shady place, and afford water at the roots. The plants will have established themselves in the pots in a week's time from being potted-up, and should then be subjected to the full sunshine, sprinkling them overhead on bright afternoons for a couple of weeks from the time of potting, whether they occupy a sheltered position out-of-doors or be placed under glass in a cool, airy house. The plants must be kept uniformly moist at the roots from the time they are planted out-of-doors until they have done flowering. An occasional surface-dressing of artificial manure immediately before applying water at the roots will be beneficial. Afford the plants as much light and air as possible, consistent with maintaining a minimum temperature of about 40° during the winter and spring months, and keep all spent flowers (where the latter are not cut in a fresh state) picked off. I am afraid "A. E.'s" "cut-backs" will not turn out satisfactorily; at the same time he will be in a position to compare the results of both methods of procedure. H. W. Ward Rayleigh.



FIG. 133.—GROUP OF ROSES EXHIBITED BY MR. GEORGE MOUNT AT THE TEMPLE SHOW.

posure [to different conditions of life may perhaps produce new races without the aid of selection; but to this difficult subject of the direct action of the conditions of life we shall in a future chapter recur" (*Op. Cit.*, ii., 192); i.e., the passage already quoted. The two results may be thus summarised. If the seedlings of a plant brought under new conditions vary in all directions, then natural selection (in this case the environment) selects one or more best fitted to survive, and destroys all the rest. That is Darwinism; but Darwin gave no facts in support of it. On the other hand, if the seedlings all vary more or less in the same direction towards adaptation, then, as Darwin says, a new species will arrive without the aid of natural selection. This is definite variation, and what I maintain is solely and invariably the case. *George Henslow*.

YELLOW-FLOWERED MARGUERITES.—I have pleasure in complying with your correspondent, "A. E.'s," request for cultural information on the cultivation of yellow-flowered *Marguerites* in pots for winter and spring-flowering (see p. 330). In the first place, it may be of interest, and prove useful to "A. E.," to know that the cuttings of these plants are taken in September, and inserted in a cold pit or

about them. Thus treated, they will soon form roots, after which they may be transplanted out-of-doors, affording them as favourable a position as circumstances may permit, and allowing a space of from 15 to 18 inches from plant to plant, according to the size pots which the plants are intended to be flowered in. Make the soil moderately firm about the roots in planting, and affording water to settle the soil about them. As soon as the young plants have taken to the soil and pushed into growth, the points of the shoots should be nipped off, and this should be repeated, when the fresh growth has made a joint, up to the middle of September, or thereabouts, when it must be discontinued. Thus treated, bushy, symmetrical, flat-headed plants will be obtained. When the stopping of the plants is discontinued, they should be ringed round with a spade at the same distance from the main stems according to the sizes of the pot—48's, 32's, or 24's, into which they are to be potted a week or so later—in order to prevent them experiencing any appreciable check in being potted. In doing this, cut close back to the soil all straggling roots before dropping them into properly-crooked pots, working a little fine soil in between the ball of earth and thoside of the pot with a piece of lath where necessary and masking the soil

ENGELMANN CAÑON.—My attention has been called to the quotation on page 201 of the *Gardeners' Chronicle* for April 2, from an editorial from *Meehan's Monthly*, wherein Mr. Meehan claims that it was so named by himself, and not by the late Dr. C. C. Parry. Up to the publication of my memoir, in 1896, the circumstance of the naming of that cañon was wholly traditional. That is, up to that time no publication of Dr. Parry, Mr. Meehan, or of any one else, contained any reference to the naming of it. Mr. Meehan's editorial referred to is his first published claim to the honour of an act which was performed more than a quarter of a century ago. My authority for the statement that Dr. Parry named the cañon was Dr. Parry himself, whose sturdy truthfulness and indisposition to claim credit for himself, even when plainly due to him, were such marked personal characteristics as to have been a subject of constant remark among his friends. Desiring something more than my personal recollection of Dr. Parry's statement to me, I wished to verify it by that of others of his scientific friends. I accordingly addressed several of them (it did not occur to me to address Mr. Meehan), with the result of fully confirming my recollection. For example, Prof. Charles S. Sargent, the well-known author and Director of the Arnold Arboretum,

wrote me as follows:—"When I was engaged upon my work on the Forests of the United States for the Tenth Census, both Dr. Engelmann and Dr. Parry were members of my field party. [See *Gardeners' Chronicle*, July 2, 1881.] While we were encamped near Engelmann Cañon, the fact that it was so named by Dr. Parry, was frequently spoken of by both those gentlemen, and carefully noted by myself." The form of the name as it has appeared in various publications previous to the appearance of my memoir was always erroneous, and was usually "Ingleman's Cañon," a form of spelling that one would hardly suppose was given by Mr. Meehan to the surveyors, to whom he refers. I have hitherto believed that the orthographical error was due to oral corruption by the mountaineers with whom Dr. Parry came in contact during his several years' botanical exploration of that region while it was yet a wilderness. Every surviving friend of Dr. Engelmann will be gratified to know that both Dr. Parry and Mr. Meehan instinctively thought of that great botanist when they first beheld the grandly picturesque cañon at the base of Pike's Peak. No one who knew Dr. Parry, however, will for a moment question the truthfulness of his statement that he gave to it the name of his friend, Dr. Engelmann. *Charles A. White, Washington.*

RAISING CUTTINGS.—The very interesting article on this subject in the *Gardeners' Chronicle*, May 7, recalls to my mind some experiments which I made two years ago. I had the curiosity to see the mode of growth of the spawn of Mushrooms, and so searched the biggest glass emporium in Teignmouth for a glass flower-pot or other vessel suitable for the purpose. Finding nothing that would answer my requirements, I ordered one of the large glass jars which confectioners use for barley-sugar and such-like sweets. On receiving it I at once saw that filled with earth it would be an unwieldy parcel to carry into and out of a dark room; so it occurred to me to fill it with Jadoo fibre. Nothing came of it. Messrs. Hsnaford & Son concluded that they had supplied me with spawn too old to grow, and kindly undertook to get me some fresh spawn, which they did. After eighteen months I mentioned to Colonel Thompson with some glee and a certain modicum of "chaff," that I had at length found a plant which would not grow in the much-talked-of Jadoo. In my many conversations with him on the suitability of Jadoo for sundry and divers purposes, he had never told me that it was destructive to fungoid growths of every kind, or I might have saved myself much expense and trouble, since under these circumstances it is not surprising that I failed to grow any Mushrooms. If therefore cuttings were planted in this fibre, or in any soil which contains a large proportion of finely-sifted Jadoo, the trouble arising from fungoid growths of any kind would be overcome, and most of the precautions dictated by the discoveries by Pasteur and his successors would be rendered unnecessary. *W. Thomson, Bishops Teignton.*

EFFECT OF SCION ON STOCK.—Having a large vineyard, I had a wish to introduce a Vine of Madresfield Court. To do so, I bought a fruiting cane in pot, and inarched it last spring on to a Black Hamburgh, at the same time allowing a few bunches on the pot-Vine, which, on ripening, I found to be Foster's Seedling. It took, and made a good rod on the permanent Vine, but not caring for the variety, I cut it out last winter; but the Hamburgh rod it was inarched on has this spring made shoots like that I have enclosed you, all other Vines in the same house being in good health and vigour. I may add that it was intended for Madresfield and Black Hamburgh to be on the same Vine permanently. Will you please inform me if the inarching has anything to do with the malformation, though it now is growing out of it. They are Vines of some age, and are grown cool. I also inarched the Foster's Seedling on to a Buckland Sweetwater Vine at the same time, which is now showing fruit, and it does not seem to affect the Buckland Sweetwater. All the Vines have had the same treatment for the past seven years, and only the inarched rod is affected. *J. Elliott.* [The scion by contact may alter slightly the characteristics of the produce of the stock on which it is placed, as, *per contra*, the stock may, and often does, alter those of the scion (see *Gardeners' Chronicle*, p. 140, February 9, 1895, and p. 182, September 11, 1897). A case is cited in these pages, *Gardeners' Chronicle*, May 6, 1893, p. 544, in which a white and a red Pelargonium were inarched, with the result that the plant showed red and white flowers in almost equal proportions. One cluster had three white

flowers, two mottled ones, and the rest pure white; sometimes one bloom would have two red petals, and the rest white. This case shows that the scion affects the stock, and *vice versa*; and the same process has occurred in the Vine grafted with Foster's Seedling, although you afterwards cut away the cane produced by the scion. The matter requires and is deserving of fuller investigation than hitherto it has received, but is much more intelligible now that it is known that protoplasm passes from cell to cell instead of each cell being a closed sac. *Ed.*]

ROSE-COLOURED LILY OF THE VALLEY.—We have here a small clump of a rose-coloured variety of Lily of the Valley, of which I enclose some blooms. It is growing against a south wall between fruit trees, and is now in full bloom. I do not observe any difference between the growth of this variety and that of the white one, except that the leaves are a little narrower. *Frederick Strong, Rochsoles Gardens, Airdrie, N.B.* [An old but seldom seen variety of *Convallaria majalis*. *Ed.*]

DAMAGE BY HAIL.—A thunderstorm of unusual violence passed over Plymouth on May 2. It got so dark at 10 A.M. that one could not read, and heavy hail and rain burst on the town suddenly, choking drains and watercourses, and flooding houses and streets. Cabbages and Lettuces had their outer leaves torn to pieces, exposing the hearts. The foot of the walls was strewn with leaves and small branches of Plum, Pear, &c. I enclose some leaves and fruit of Pear, the fruit pitted by the hailstones. *H. R.*

GARDENERS' CHARITIES AND GARDENERS' WAGES.—"Subscriber" does well in dealing so faithfully with this matter in a recent *Gardeners' Chronicle*. If his contribution does not secure fifty or a hundred more subscribers to the gardeners' charities it will not be for lack of hard-hitting. Whether this latter is the likeliest mode of bringing gardeners in closer or more practical touch with their own charities, remains to be seen. Probably matters will not be greatly improved until gardeners generally grasp the fact that these charities are, and ought to be, chiefly their own affair. Not so much on account of anything they expect to get from them, but because of the opportunity they offer us of helping our comrades and friends, the aged and the afflicted, and the widows and orphans of our brothers of the gentle craft, who have been disabled in the battle of life. I cannot believe that gardeners as a class are selfish or indifferent to the wants and sufferings of their fellows, or their families; quite the contrary. Perhaps no class of men are more brotherly and helpful to each other than gardeners in their daily avocations. Who of us has not found among our friends and neighbours, friends in need at a pinch. Scotchmen in particular, and gardeners in general, can forgive the stinging caricature your correspondent draws of Sandy as "a decent man who keeps the Sabbath and everything else he can lay his hands on," for its broad humour, which they can afford to laugh at with a clear conscience. Neither is it quite fair to attempt to measure the ability of gardeners to support their charities by their manner and appearance at our great shows. "Subscriber" says truly enough, gardeners look well fed, well dressed, well stocked with pocket-money, and brimming over with high spirits. This, in the main, is true. But these big shows are the full-dress parades of the gardeners. Not a few are sent thither by their employers, and others scrape and save for the great shows as the chief holiday of the year. Gardeners' homes are a far better test of their means than their holiday attire and conduct at flower shows. And even here it is easy to be deceived. Sandy and his wife will pinch for the following week, if need be, to place of their best in profuse hospitality before their neighbours and friends, carefully concealing the slightest sign of scarcity or want. No one, however, can go among gardeners very much without finding that the struggle for life and respectability is severe. Victories are won over adverse circumstances in thousands of gardeners' homes that would bring success in most other careers. Largely through lack of means, partly through the impoverishing dependence on nurserymen, employers, and the gardening press, for the support of our charities, these have lacked the whole-hearted support of gardeners as a class. Surely, "Subscriber's" letter may do something to enlist the active sympathy which spells help of a monetary kind, of the thousands of gardeners in these islands whose names appear in the various horticultural directories. One penny each man would prove a donation worthy of the donors and

their objects. A shilling each would probably place every aged and afflicted gardener and their widows and orphaned children beyond the reach of poverty, and the yet greatly more dreaded workhouse. Permit me to summon "Sandy," and all other gardeners, to the assistance of his brother gardeners' children and widows—mayhap his own, as in these matters the unexpected is constantly happening. The most cursory glance at our list of orphans, and the pensioners of the Gardeners' Benevolent Institution, prove once more the sad effects of the uncertainty of life. I was prepared to some extent for "Subscriber's" statement about the scant interest in gardeners' charities in Scotland, through a long conversation a few days previously with a gentleman in Edinburgh, who has long done what he could for our orphans and disabled comrades. The Scottish Horticultural Association has done yeoman's service for our charities. Still, only 300 practical gardeners contribute to the Gardeners' Orphan Fund, only thirteen of them resident in Scotland, although Scotland has eight pensioners drawing from the funds £104 per annum. Why, that will never do, especially as to secure one vote for every election or support an orphan for a week, a subscription of 5s. a year, or a fraction over 1½d. a week suffices. Could this matter of 1½d. a week for our orphans be put to the ten thousand gardeners in the *Horticultural Directory*, and to the 600 members or so of the Scottish Horticultural Association, can anyone doubt but that it would be carried by an overwhelming majority? Even the most grasping Sandy, if such there be left north o' Tweed, would feel his baubees burning a hole through his breeks if he tried to keep them back from such a fine purpose as the feeding, clothing, and teaching of the orphan bairns of his friends and neighbours, mayhap of his own in the future. Gardeners, too, have often other means of assisting their charities in addition to their life or annual subscriptions. Most employers would be happy to give an open day for the gardening charities, when their gardens are at their best, if the matter were properly placed before them. These, either with or without a band of music, would generally draw a good many sixpences and shillings to the exchequers of our gardening charities. The indirect effect of these local fêtes on open days or half-days, on behalf of our charities, could hardly fail to be felt among all sorts and conditions of gardeners, and to bring in many such as annual subscribers and supporters. *An Original Subscriber.*

ARCTOTIS VIRGATA.—On p. 308 of your recent issue, the last paragraph of the middle column is a statement that good seeds of the above-named Composite have been received at Kew from a correspondent in South Africa, and giving a description which, if accurate, should make it a decided acquisition. There must, however, I think, be a mistake on the part of the sender as to the name, as *A. virgata*, as figured on plate 307 of volume iii. of Jacquin's fine *Hortus Schönbrunensis*, has comparatively small flowers of a rather dull shade of yellow, and by no means resembling the flowers of the beautiful *La France Rose*. If the seed sent should turn out to be the lovely *Arctotis rosea*, figured by Jacquin on plate 206 of the second volume of his fine work above mentioned, as I sincerely hope it may, it will indeed be a valuable acquisition to our gardens. All these fine forms of *Arctotis* are, I believe, indigenous to Namaqualand, a district but seldom visited by Europeans, and though most of them were in cultivation towards the end of last century in the fine gardens of the Emperor of Austria at his palace of Schönbrunn, where Jacquin described and figured them, all are, I believe, long lost to cultivation save three, *A. aureola*, *A. arborescens* or *aspera*, and *A. acaulis*; the last named is comparatively worthless. *W. E. Gumbleton.* [*A. virgata*, like others of the genus, is variable. The sender of the seed is a competent observer. When the plant flowers, the question can be determined. *Ed.*]

DOVER HOUSE, ROEHAMPTON.

This exceedingly well-kept suburban garden offers at all seasons of the year lessons in good cultivation. The greenhouse is now full of specimen-plants of *Souvenir de la Malmaison* Carnations, already in flower, or commencing to bloom. The picture these present may possibly be imagined when we say that some of the plants have forty or forty-five flowering-growths to each. They are two and a half years old, occupy 10-inch pots, and are furnished with most luxuriant foliage to the very base. There

is not the slightest trace of disease, nor is there any disfiguration of the plants from any cause. This type of Carnation is very liable to injury from greenfly; the flies get down in the centre of the growths, and as the leaves unfold, they are seen to be disfigured generally by spotting. There is nothing of the kind, however, in Mr. McLeod's collection, but the foliage is thick, wide, leathery, and of that glaucous hue indicative of the best health. They were scarcely forward enough for exhibition at the Temple Show, so many of the lovely flowers having yet to unfold; but a large group of plants will probably be shown at the Drill Hall during June. The larger plants in the greenhouse do not exhaust the stock, for Carnations are especial favourites of Mr. J. P. Morgan, the liberal proprietor of these gardens, and there are several batches of

Caladiums, in addition to the Crotons, and other evergreen species; whilst the new *Acalypha Sanderi*, figured in *Gardeners' Chronicle*, April 23, p. 248, already adorns the collection with its showy pendent blossoms of rosy-scarlet. The fruit-houses are looking capital, the Vines and Peaches promising well. Peaches were first gathered on April 30, the variety being *Stirling Castle*. During the last few seasons increased attention has been given to Figs, and a small house is now filled with them. We have never seen a better first crop than Mr. McLeod has had this year, and the second crop is also a very full one.

There have been plenty of ripe Strawberries, and there remain 400 plants in pots still to fruit. Mr. McLeod's experience is similar to that of many other gardeners who have found *Royal Sovereign* to be the very best Strawberry for forcing. The results

for the last seven years; Peas, which are just podding, and all other crops, including Asparagus, are growing apace. Since last summer there has been built a capital range of frames, and lately has been felt the convenience that such essential structures to a well-equipped garden always afford. As usual at Dover House, every care has been taken to ensure a fine display during the summer of Carnations and Violas in the outside borders, the annual exhibitions of which are always first class; that of Violas being, so far as the south is concerned, quite unique. A batch of fine plants of *Humea elegans*, just about to flower, will be most handsome ornaments to the flower-garden this season.

LAW NOTES.

Re H. J. SHEPPARD, FLORIST, BEDFORD.

THE public examination of this debtor took place at the last sitting of the Bedford Bankruptcy Court, before the Registrar. The statement of affairs filed by the debtor disclosed gross liabilities amounting to £4814, of which £4420 was expected to rank against the estate for dividend. The business was formerly carried on by his father, and was transferred to witness in 1895. In 1893-94, there were some alterations, in consequence of the Midland Railway Company taking one of the nurseries, and the whole of the stock had to be sold by auction. The stock was worth something like £900, but the nett result of the sale was something like £100. Eventually the examination was adjourned to enable debtor to file further accounts.

Re ALFRED ELLIS, FLORIST, 329, COWBRIDGE ROAD, CANTON, CARDIFF.

This debtor, who formerly carried on business as a florist and nurseryman at the Roath Nurseries, Newport Road, Cardiff, has now filed a statement of affairs showing gross liabilities amounting to £548, of which £515 is expected to rank against the estate for dividend. The assets are returned at £266 5s., thus leaving a deficiency of £249 6s. 7d. The debtor alleges his failure to have been caused through losses on the sale of stock, depreciation in the value of stock, loss of trade in consequence of removal from Newport Road, and bad debts.

FLORISTS' FLOWERS.

CARNATION "HARROW WEALD BEAUTY."

UNDER this name a very pretty, large flowered seedling of *C. Malmaison* is grown by Mr. Dinsmore, gardener to T. F. Blackwell, Esq., The Ceders, Harrow Weald, where it is at present in great beauty. In habit and in the size and form of its flowers the variety closely approaches the old *Souvenir de la Malmaison* Carnation, but its flowers, whose fragrance is like that of the old *Clove*, are blush-white, heavily flaked with bright rose colour. It seems to be both a good grower and an abundant bloomer for the section to which it belongs.

Obituary.

LORD PLAYFAIR.—The death on Sunday last of this distinguished chemist and politician is announced. Lyon Playfair was for some time Professor of Chemistry in the University of Edinburgh, and was associated with Dr. Lindley in the investigation of the Potato disease on its first appearance. At that time frequent communications of his were printed in the *Gardeners' Chronicle*, but of late years we have not been able to register him among the number of our contributors.

GEORGE EDWARDS.—We regret to inform our readers that Mr. George Edwards, who for upwards of thirty years carried on a nursery and florist's business at Balham, London, and who during the last five years was engaged in the cultivation of flowers, &c., for market, has passed away, at the age of 64.



FIG. 134.—PELARGONIUM, "SPOTTED BEAUTY."

(Shown by Mr. C. Turner, Slough, at the Temple Show. See Report, ante, p. 330.)

younger plants in other houses now developing their inflorescences. These include the handsomely-coloured varieties, *The Churchwarden*, *Lady Grimston*, &c.

The house where the greenhouse flowering-plants are displayed is very bright with a miscellaneous lot of forced plants, very tastefully arranged, with a liberal quantity of ornamental foliage species. The batch of *Codiaeums* (*Crotons*) is always attractive in this garden, because well grown and highly coloured. The plants are now growing quickly. There are many plants of several promising seedlings raised a couple of years since by Mr. McLeod, of which more will be heard, as they are distinct from others, and possess high ornamental qualities. Opposite, and in the same house as the *Crotons*, is the collection of *Caladiums*, now looking as pretty as they will look throughout the year. We noticed several of the novelties shown for the first time at the Temple Show last year by Messrs. Veitch & Son, of Chelsea, of which the best are probably *Lady Stafford Northcote* and *Mrs. McLeod*. The plant-stove, which is always full of good specimen plants, now contains fine

from this variety have been excellent, scarcely a plant failing, and the fruits as we saw them are of large size, good colour and flavour.

The hardy fruit trees have produced a great wealth of bloom, but the palm in this respect must be given to the *Morello* Cherry-trees against a wall. Mr. McLeod does not tie these in closely, but the younger growths stretch out from the wall more than a couple of feet, and they have also got a little above the wall. These trees in April were such a show as we have never before seen equalled—not even by Cherry-trees, floriferous though they usually are. If the crop of fruits should have any relation to the blossom, *Morello* Cherries will be abundant at Dover House during the coming season. They have set abundantly, and we hope few of the fruits will fall.

The Sweet Cherries upon the walls have also set a good crop of fruits. Peaches are not more than an average crop; but of Plums there is promise of good crops upon the wall trees and standards. Spring Cabbages (*Ellam's Early*) were in use a month since, and have nice close-hearted heads. Carrots, upon the same ground that has produced this crop

SOCIETIES.

ROYAL HORTICULTURAL.

(MAY 25, 26, 27.)

TEMPLE SHOW PRIZE LIST.

GOLD MEDALS.

Sir T. Lawrence, Bart., for Orchids; Messrs. W. Paul & Son, for Roses; Mr. G. Mount, for Roses; Messrs. James Veitch & Sons, for Caladiums, Crotons, Cacti, Gloxinias, &c.; Leopold de Rothschild, Esq., for pot fruit-trees.

SILVER CUPS.

Messrs. J. Jackman & Son, for Clematis and Herbaceous Plants; Messrs. R. Smith & Co., for Clematis; Messrs. Barr & Son, for Herbaceous Plants; Messrs. Cutbush & Son, for Foliage Plants, Palms, and Carnations; Sir F. Wigan, for Orchids; Messrs. Charlesworth & Co., for Orchids; Messrs. H. Low & Co., for Orchids; Messrs. H. Sander & Co., for Orchids and New Plants; H. S. Leon, Esq., for Orchids; Earl Percy for Orchids; Messrs. Linden, for Orchids; Mr. J. Cypher, for Orchids; Mr. J. R. Box, for Begonias; Messrs. Paul & Son, for Roses, &c.; Mr. C. Turner, for Roses, Pelargoniums, and Carnations; Lord Aldenham, for Vegetables; Sir J. Pease, Bart., for Fruit; Messrs. Rivers & Son, for Pot-fruit; Messrs. Sutton & Sons, for Vegetables; Messrs. Carter & Co., for Vegetables and Flowering-plants; Messrs. Cannell, for Caneas, Gloxinias, Calceolarias, and Begonias.

SILVER-GILT KNIGHTIAN

MEDALS.

Messrs. G. Bunyard & Co., for Apples, &c.; Mrs. Wingfield, for Vegetables; Mr. S. Mortimer, for Cucumbers and Tomatoes.

SILVER-GILT FLORA MEDALS.

Mr. T. S. Ware, for Herbaceous Plants; Messrs. Perkins, for Bouquets, &c.; Mr. H. B. May, for Ferns; Messrs. B. Williams, for Orchids and Decorations; Messrs. Lewis & Co., for Orchids and Decorations; W. Thompson, Esq., for Orchids and Decorations; Jules Hye-Leyson, Esq., for Orchids and Decorations; Leopold de Rothschild, Esq., for Carnations; Messrs. W.

Balchin & Son, for Leschenaultias; Messrs. James & Son, for Calceolarias; Messrs. Fisher, Son, & Sibray, for Hardy Foliage Plants; Messrs. Kelway & Son, for Paeonies, &c.; Messrs. J. Waterer & Son, for Rhododendrons; Messrs. J. Laing & Son, for Gloxinias and Streptocarpus; Messrs. J. Peed & Son, for Caladiums; Messrs. Cheal & Son, for Flowering Shrubs.

SILVER-GILT BANKSIAN.

Ludwig Molt, Esq., for Orchids; Mr. H. J. Jones, for Begonias; Mr. Frank Cant, for Roses; Mr. Backhouse, for Alpines, &c.; Messrs. R. Wallace & Co., for hardy plants, &c.; Mr. Geo. Edom, for Tulips; Mr. W. Rumsey, for Roses; Mr. J. Pritchard, for Cacti; Mr. V. Seale, for decorations; Messrs. J. Hill & Son, for Ferns; Messrs. W. J. Birkenhead, for Ferns; Mr. Malcolm S. Cook, for Orchids; L. De Smet Duvivier, for Anthuriums.

SILVER FLORA MEDALS.

Messrs. J. House & Son, for Violas; Mr. A. Young, for Gloxinias, &c.; Mr. A. Perry, for herbaceous plants; Mr. Moyes Stevens, for bouquets, &c.; Mr. W. Sydenham, for Violas, &c.; Mr. L. A. Calcutt, for decorations; Mr. J. Prewett, for decorations; Mr. H. J. Jones, for decorations; Mr. J. Russell, for decorations; Mr. J. Pritchard, for decorations; Messrs. F. Miller & Co., for decorations; Messrs. R. & G. Cuthbert & Co., for decorations; Messrs. W. Fromm & Sons, for Maples; Mr. Icton, for foliage plants; to Jadoo, Ltd., for foliage plants; Messrs. Cripps, for Maples.

SILVER BANKSIAN MEDAL.

Messrs. Koster & Son, for Azaleas; Mr. A. Tulett, for zonal Pelargoniums; Mr. E. G. Reid, for Rhododendrons; Mr. F. Chapman, for Asparagus; Mr. W. Godfrey, for Asparagus; Lord Foley, for Strawberries; Mr. A. Henderson, for Fruits and Vegetables; Mr. W. Lawrence, for Asparagus.

Floral Committee.

FIRST-CLASS CERTIFICATE. To Phlebodium glaucum Mayi, from Mr. H. B. May, Edmonton; Acalypha Sanderi, and Licalia Jeanencyei, from Messrs. F. Sander, St. Albans; Lilium rubellum, from Messrs. R. Wallace & Co., Colchester.

AWARD OF MERIT.

To Holly Golden King from Messrs. Little & Ballantyne, Carlisle; to Auricula Snowdrop, from Mr. R. Dean, Ealing; to Begonia Mr. Dunbar Wood, from Mr. T. S. Ware, Tottenham; to Phyllocactus Epirus, and P. Agatha,

Awards of the Orchid Committee.

FIRST-CLASS CERTIFICATES. Cattleya Mendeli Oakes Ames, from Hugh Low & Co., Enfield; Odontoglossum Rodyanum venustum, from Messrs. Linden, Brussels; Odontoglossum crispum x Harryaunum, from Chas. Vuylsteke, Lochristi; Leilio-Cattleya Admiral Dewey, and Cattleya Fernand Davis, from Messrs. Charlesworth, Bradford; Dendrobium Dalhousiei Salmoinea, from Hugh Low & Co., Enfield.

AWARDS OF MERIT.

Cattleya Lælia Mendeli Ames, from W. P. Burkinshaw, Esq., Hull; Miltonia Bleuana rosea gigantea, from Jules Hye-Leyson, 170, Courpure, Gand; Cattleya Mendeli Mrs. E. V. Low, from Hugh Low, Enfield; Odonto-

glossum crispum zebrinum, Odontoglossum crispum decorum, Odontoglossum Pescatorei bellatulum, from Messrs. Linden, Brussels; Leilio-Cattleya Intermedia flava, from Messrs. Charlesworth; Odontoglossum Charlesianum, from Mons. A. Madoux, Anderghem; Miltonia vexillaria Empress Victoria Augusta, from Messrs. J. Backhouse & Son, York.

BOTANICAL CERTIFICATE. To Cinnhoptalum Colletti, from Mr. Ashworth.

CULTURAL COMMENDATION. Oocidium concolor, from H. S. Leon; Epidendrum prismatocarpum, from W. Cobb, Esq.; Odontoglossums, from W. Thompson, Esq., also special vote of thanks.

Award of the Fruit Committee.

AWARD OF MERIT.

Apple Ontario, from Messrs. Geo. Bunyard & Co.

THE SCOTTISH HORTICULTURAL ASSOCIATION.

MAY 21.—On this date, the members of this Association, to the number of about seventy, visited Gosford House under very favourable circumstances. Two special carriages were put on from the Waverley to Longruidry station, where the party was met by the head gardener to the Earl and Countess of Wemyss, Mr. Cooke, who conveyed them through the demesne and gardens with the utmost courtesy and kindness. Mr. Connor, the head factor and the chief housekeeper to the Earl and Countess of Wemyss, also accompanied the party through the grounds and the best apartments of the Hall, viewing the art treasures of the place, and greatly adding thereby to the pleasure and profit of the visitors. Refreshments were served to the visitors in the dining-room, and after the repast the President, Mr. Todd, returned hearty thanks through Mr. Connor to the Earl of Wemyss for his generosity and kindness to the members of the Association; and Mr. Connor, in responding, bade them all, in his Lordship's name, a hearty welcome, adding truly that Mr. Cooke had a great deal to show his visitors. [We reserve an account of the arboreal and other treasures of Gosford, kindly sent by our correspondent, Mr. D. T. Fish, who accompanied the party, for a future issue, illustrating it with a reproduction of a photograph of the lake. Ed.]

MANCHESTER WHITSUNTIDE FLOWER SHOW.

MAY 27.—The annual Whitsuntide exhibition was opened at the Royal Botanical Gardens, Old Trafford, on the above date. Sir TREVOR LAWRENCE president of the Royal Horticultural Society of London, was among the exhibitors, and he further honoured the Royal Botanical Society of Manchester by paying his first visit to the city and the gardens yesterday.

In accordance with yearly custom, the exhibits were divided between the grand avenue and the Palm-house. The general aspect of the grand avenue was one of brightness and variety of colour. Its brilliancy would have been even greater, but that the comparatively cold and sunless spring had kept back the bloom on a collection of Rhododendrons which Messrs. WATERER, of Bagshot, placed in the lower part of the avenue a couple of months ago. Some of these shrubs were in full flower, but the greater proportion were teeming with unopened buds. Groups of miscellaneous plants arranged for effect formed as usual one of the leading attractions of this part of the premises. In the open class for amateurs, with a space limit of 200 square feet the competitors were Miss LORD and Mrs. G. PEASE (gr., Mr. J. McIntyre). The former lady's exhibit was particularly light in its effects, a result attained by careful selection and distribution of white flowers and bright-foliaged plants, with a background of Cocos, Bamboos, and Phoenix of species. Among the more noticeable of the other component parts of the group were some Dendrobiums of rare culture, Amaryllis, Caladiums, and Alocasias. Mrs. PEASE's competitive display, which obtained for its owner the 1st prize, was of somewhat deeper tone, its ingredients admirably arranged, and its Crotons of special quality; among them was a plant of the fine twisted variety, Prince of Wales.

Miss LORD's gardener, Mr. Wilkes, had another good group in the department for amateurs within twenty miles of Manchester with a space limit of 100 feet. This was rewarded with the 1st prize, and was followed closely in merit by a group from Dobroyd Castle.

Nurserymen's competition in groups was confined to Messrs. R. P. KER & SONS, of Liverpool, and Mr. BRUCE, of Chorlton-cum-Hardy. Each of these collections contained a wealth of floral and horticultural gems. The exhibit of Messrs. KER was rich in Crotons, Begonias (chief among them a new variety, Princess Charles of Denmark), Hydrangeas, bearing huge trusses of white bloom, and other teatime and rare kinds of leaf and flower. Mr. BRUCE's group, which earned the 2nd prize, depended upon the use of similar materials for its charms. There was, however, a marked difference in his tasteful use of Azalea mollis in various shades of yellow flower. His specimens of pitcher and carnivorous plants were worthy of mention. Mr. JOHN BROWN, of Heaton Mersey, was the only exhibitor of Roses for competition. His contribution was very meritorious, and included a particularly well-flowered plant of Mrs. John Laing.

Among the trade exhibits not for competition, a prominent place was taken by Messrs. SUTTONS' (Reading) exhibit of herbaceous Calceolarias. All the plants were unusually dwarf, profusely flowered, and with healthy foliage, completely covering the pots they were grown in.

Messrs. DICKSON, of Chester, were represented by an interesting show of Japanese Acers, of forms made familiar to us through its use as a subject of decoration on the native fans and screens. Messrs. CLIBBAN & SON, of Altrincham, showed yellow Richardias and other plants in flower, and Messrs. R. SMITH & Co., of Worcester, Clematis.

The Palm-house was devoted to Orchids principally, which were well supported by hothouse plants in many varieties. The general appearance on entering the section was very pleasing. But it must be admitted on a closer view, that notwithstanding the beauty of the whole, there was almost an entire absence of specialties. The plants shown were well flowered, and fairly well cultivated. The prin-

cial species were Lælia, Cattleyas, Odontoglossums, Cypripediums, and Dendrobiums. Interest centred round the competition for the Society's Gold Medal. There were four plants in the running, but the Award clearly lay between two. These were the Leilio-Cattleya eudora var. Madame Albert Ilye, of Messrs. Veitch of Chelsea, and the Cypripedium Olenus (Burford variety) of Sir Trevor LAWRENCE, Bart., of Burford Lodge, Dorking. The two other specimens were an albino Miltonia var., one of the rarest plants in the country, owned by Mr. ELIJAH ASHWORTH, of Wilmslow, and a Cypripedium Cravenianum, a smaller flower than that of Sir Trevor's, having a 'creamy ground-work with crimson spots. This plant is the property of Mr. G. W. LAW-SCHOFIELD, of Rawtinstall. The Cypripedium Olenus exhibited was the only plant in the country of the kind, and it will probably startle the lay mind to learn that it is valued at £1000.

The 1st prize for the best miscellaneous collection of Orchids in bloom, in the open competition, was taken by Mr. JAMES CYPHER, of Cheltenham, who exhibited a splendid group.

In the amateur section, Mr. ELIJAH ASHWORTH, of Wilmslow, took the corresponding honour with an excellently well arranged collection of plants. The same gentleman was also placed 1st for the best collection of ten plants. The group contained two very fine specimens, a Cattleya Skinneri alba, with splendid spikes, and the exceedingly rare Odontoglossum Vuylstekeanum. Mr. THOMAS STATTER, of Stand Hall, was awarded 1st for a meritorious collection of Cattleyas and Lælia. Extract from Manchester Courier, May 28, 1898.

EDINBURGH FIELD NATURALISTS AND MICROSCOPICAL.

MAY 28.—Last Saturday the members of this Society went to Lochleven to botanise the shore of the loch. With the exception of a few sedges, Nasturtium palustre and Centunculus minimus, nothing out of the common was found until on the eve of departure, one of the members got a few specimens of the creeping spearwort, Ranunculus reptans, a plant which is said to be found nowhere else in the Kingdom. Very little of the Water-thyme, Elodea canadensis, was observed, although it had been publicly stated a short time ago that its rank growth was spoiling the loch for angling purposes. University rowers on the Cam used to complain of it bitterly for stopping their progress, and they named it Babingtonia pestifera, because their Professor of Botany had got the blame of introducing it into the river in 1847. The plant is an interesting one to this Society, for the male flowers were first discovered in Britain by one of its members, in a pond on the Braid Hills, near Edinburgh, early in August, 1880, and about forty years after its introduction. It usually produces only female flowers, and propagates by division, without developing fresh seedlings, a process which tends to weaken the plant and restrict periodically its freedom of growth. The plant is interesting also to the physiologist, as it shows peculiarly well under the microscope the circulation of the protoplasm.

FORESTRY.

THINNING THE NUMBER OF SHADE-TREES.

THE summer season affords the best time to make notes of the degree of thinning, which the forester may require to put into practice in the felling season, hence the reference to the subject at this date. It is only when we come to regard the character of the usual shade-trees, such as the Beech and Spruce, that the evils of very early or of injudicious thinning are fully apparent. A tree of the common Spruce or a Beech, makes a pleasant picture if well furnished with branches, and would be preferred by most persons to a clean-boled specimen of either; but when such trees are felled, the disposal of the timber often becomes a troublesome matter. In ordinary plantations a certain amount of lateral growth arrests the development of the crown, and the really clean boles fit for sale, which may be termed ideal timber-trees, are often the result of accident than design in woods. Most foresters are more fearful of having an occasional attenuated stem than a rough and over-branched one, apparently oblivious that the cubic contents of a tree are determined by its length as well as its girth; that clean timber is worth half as much again as rough, knotty stuff; and that a given quantity of the former can be grown on a smaller area than the same quantity of the latter.

It is a rather curious fact that the timber of shade-bearing trees generally is lower in value than that of the majority of light demanders. Part of this lower appreciation is due to the nature of the woods themselves, quite apart from the method of growing them. Away from the chair-making and manufacturing districts, Beech has little more than firewood value, and large coarse butts hardly pay

for cutting and splitting up. The almost general use of coal as fuel has rendered firewood more and more difficult to dispose of, and for this reason, if no other, the economical working of woods is intimately connected with the amount of clean timber they contain. Except for forming avenues, and as ornamental trees in parks and demesnes, Beech is now rarely planted to any extent, for this reason; but in the chalk districts of southern England there are large areas of Beech-wood which naturally reproduce themselves, and it is beyond doubt that this tree is far and away above any other hard wood in its adaptability to the thinner soils and high-lying situations on the chalk formation. In such districts, therefore, Beech must still be regarded as an important timber-tree, and it is not too much to say that, not only its relative, but in many cases its actual value depends upon its treatment during the first fifty years of its growth. If planted or allowed to grow thickly, and left almost or quite alone for the first twenty years, the foundation of a good crop of timber will be formed, the subsequent development of which may be assured if only the thinning be confined to the removal of none but suppressed and badly-shaped trees. Even the latter, if doing good service by confining better and straighter stems, had best remain until they can be removed without leaving a gap in the leaf canopy, for nothing induces a one-sided and crooked growth so much as the admission of light to the lower parts of the stems. In fact, thinning should be omitted altogether unless it can be done in such a gradual and cautious manner that no stimulus may be given to the growth of side branches until the trees have almost reached their maximum height. At this latter stage moderate thinning is beneficial, and results in a considerable increase in the breadth of the wood-ring, and cases have been recorded where the bark has actually been ruptured by the sudden increase of growth when free thinning has followed a thickly-stocked condition of the wood. When Beech is grown in this way it will be found quite as profitable a crop as the majority of coniferous trees, which have little or no market value. Of course, few landowners plant woods entirely of Beech with an idea of profits being made; but where Beech woods are in existence their perpetual reproduction is simply a matter of management, and is not attended with the expense inevitable in reproducing most other species of timber trees. If Beech were regularly mixed with Larch on this, chalky soil, the growth of the former would not only be benefited, but a crop of clean Beech would still remain on the ground after the Larch had matured and been removed. The shade of the Beech foliage is undoubtedly beneficial in keeping a soil moist and cool, and further assists in this work by the rich and heavy layer of dead leaves which each autumn lays upon the surface; and a cool, moist soil is probably one of the most important factors in the growth of healthy Larch in the south of England. A. C. Forbes.

VARIORUM.

AT MACKAY: A QUEENSLAND FOREST.—"My first walk in the wild tropical jungle next morning I cannot forget. I entered, sketch-book in hand, by a narrow little pathway, probably made by an alligator. I kicked, as I thought, a grey stick aside—it was a snake, and, quick as lightning, it darted off, while I grew hot and cold by turns. There was such a death-like silence about me that I felt an intruder there, and the thick and tangled mass of rank vegetation completely hid the sun from sight. A few steps farther on I came to an opening, and below me lay a miniature lake, its water covered with dark blue Lilies floating amid their leaves, on which the sun shone through a network of graceful Palms. Scarlet, yellow-eyed dragon-flies skimmed over its surface, while presently a great butterfly tremulously fluttered past, and the sunlight, catching the metallic lustre of its wings, changed them to every rainbow hue. The trees were clasped and linked together by delicate tendrils, and climbing Ferns and huge Caladiums covered the ground. It was a scene of wild, mysterious beauty, but in the distance there was the hum of a thousand gossamer-winged and hungry insects, and I hurried on with my sketch, for the mosquitoes had already found me out. Too much wrapped up in my work to turn round, I pushed twice aside from my cheek what I took to be a hanging tendril; but

surely it moved too quickly—one wild jump, and I was yards away! It was a long tree-snake that had fastened its tail to a branch, and, curious to find out what manner of being this might be that had disturbed its solitude, was gracefully swaying backwards and forwards. This was the climax, and with a good deal of slipping and scrambling, I left the scene without a regret." A Flower Hunter in Queensland and New Zealand, by Mrs. Rowan.

THE WEATHER.

[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named: and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

DISTRICTS.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.	
	ACCUMULATED.					Inch.	Ins.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 2, 1898.
	Above (+) or below (—) the Mean for the week ending May 28.	Above 42° for the Week.	Below 42° for the Week.	Above 42° difference from Mean since January 2, 1898.	Below 42° difference from Mean since January 2, 1898.				
0	2 -	37	1	+ 81	- 222	3	113	25.2	27
1	3 -	43	2	+ 67	- 223	4	85	10.4	27
2	3 -	43	9	+ 19	- 215	4	74	8.0	32
3	1 -	67	0	+ 38	- 24	3	69	6.7	45
4	1 -	72	0	+ 35	- 213	1	69	7.3	26
5	1 +	85	0	+ 55	- 241	1	66	8.0	34
6	1 +	69	0	+ 97	- 215	6	96	16.1	49
7	1 +	76	0	+ 93	- 242	1	82	13.5	50
8	2 +	88	0	+ 71	- 156	2	79	12.4	57
9	0 aver	68	0	+ 91	- 166	5	100	14.0	34
10	0 aver	80	0	+ 104	- 133	4	77	13.8	35
11	1 +	94	0	+ 191	- 93	2	89	9.7	48

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

THE PAST WEEK.

The following summary record of the weather throughout the British Islands for the week ending May 28, is furnished from the Meteorological Office:—

"The weather during this period was fairer and drier than in the weeks immediately preceding it, but a good deal of cloud prevailed in some districts, and showers were experienced in most places either at the beginning or towards the end of the week. Thunder and lightning occurred in some parts of England, mostly on the 22d.

"The temperature was below the mean in 'Scotland, N. and E.,' 'England, N.E. and E.,' and the 'Midland Counties,' but rather above it in 'Scotland, W.,' and 'England, S., S.W. and N.W.,' and just equal to the normal in Ireland. The highest of the maxima were recorded on Monday over England, on Saturday in Scotland, and on irregular dates in Ireland; they ranged from 77° in 'England, E.,' and 76° in 'England, S.,' to 65° in 'Scotland, E.,' and to 61° in 'Scotland, N.' The lowest of the minima, which were registered during the latter half of the week, ranged from 33° in 'Scotland, N.,' and 34° in 'England, E.,' the 'Midland Counties,' and 'Scotland, W.,' to 39° in 'England, N.W.,' and to 50° in the 'Channel Islands.'

"The rainfall was less than the mean in all districts, excepting 'England, N.W.,' the fall over the eastern districts of Great Britain and in 'Scotland, W.,' being very slight. Heavy local rain fell in some places; at Liverpool on Sunday, and at Cullinstown on Tuesday, more than an inch was measured, the amount at the latter station falling in forty minutes, during a thunderstorm.

"The bright sunshine was deficient in nearly all districts, but equalled the normal amount in 'England, E.,' and exceeded it in 'Scotland, W.,' and 'England, N.W.' The percentage of the possible duration ranged from 49 and 50 in these two latter districts, and 48 in the 'Channel Islands,' to 32 in 'England, N.E.,' 27 in 'Scotland, N. and E.,' and 26 in the 'Midland Counties.'"

MARKETS.

COVENT GARDEN, JUNE 2.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand; and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Adiantums, p. doz.	4 0-12 0	Fuchsias, per doz.	6 0-9 0
Aspidistras, per doz.	12 0-30 0	Foliage plants, per dozen	12 0-34 0
— specimen, each	5 0-15 0	Heliotropes, p. doz.	7 0 9 0
Azalea, per dozen	21 0-36 0	Hydrangea various	10 0-24 0
Calceolarias, per doz.	9 0-12 0	Liliums, various, per dozen	12 0 3 0
Coleus, per doz.	4 0-6 0	— various, p. doz.	12 0-24 0
Crassula, per doz.	12 0-18 0	— specimen, ea	10 0-24 0
Dracenas, each	1 0-7 6	Marguerites, p. doz.	6 0-12 0
— various, p. doz.	12 0-24 0	Mignonette, p. doz.	1 0-6 0
Ericas, various, per dozen	12 0-30 0	Palms, various, ea	4 0-1 0
Evergreen shrubs, in variety, doz.	6 0-24 0	Pelargoniums, doz	2 0-8 0
Ferns, small, doz.	1 0-2 0	— rhodanth, per doz.	5 0-6 0
— various, p. doz.	5 0-12 0	Scarlets, per doz.	1 0 8 0
Ficus elastica, each	1 0-7 6	Spirea, per dozen	6 0-8 0

OUT FLOWERS.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Arums, 12 blooms...	3 0 4 0	Orchids:—	
Azaleas, doz. sprays	0 6-0 9	Cattleya, 12 bms	6 0-9 0
Bluebells, doz. bun.	0 9-1 0	Odontoglossum crispum, 12 bun	2 0 4 0
Bonvardias, per doz.	0 6-0 8	Pelargoniums, sca	
Carnations, pr. doz		— let, per 12 bun	4 0-6 0
— blooms	1 6 3 0	— por 12 sprays	0 4 0 6
Co-slips, doz. bun.	1 0-1 6	Primroses, per 12 bunches	0 9-1 0
Encharis, per dozen	3 0-4 0	Roses Tea, per doz	0 6-1 0
Gardenias, per doz		— yellow (Pearls), per dozen	1 0 2 0
— blooms	1 6-3 0	— pink, per doz	3 0 6 0
Gladioli, white, doz.		— Safrano, p. doz.	1 0-2 0
— sprays	0 8-0 9	— red, per dozen	2 0-4 0
Lilac, Fr., p. bunch	3 6-4 0	Stephanotis, doz.	
Lilium Harist, per doz. blooms	3 0-4 0	— sprays	2 0-3 0
Lily of the Valley, dozen sprays	0 6-1 0	Tuberose, 12 bms.	1 0-1 6
Maidenhair Fern, per 12 bunches	4 0-8 0	Tulips, 12 bunches	3 0-6 0
Mignonette, 12 bun.	2 0-4 0	— Safrano, p. doz.	1 0-2 0
Narciss, various, per dozen bunches	1 0-2 6	— Parme, French	2 0-3 6
		Wallflowers, 12 bun.	2 0-3 0

ORCHID-BLOOM IN VARIETY

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s. d. s. d.		s. d. s. d.
Asparagus, English, natural, home-grown, p. bun.	3 0-3 6	Lettuce, Cabbage, home-grown, per doz.	0 6-0 9
— Worcester	1 3 2 0	— per score	1 0-1 3
— English, Spruce, bundles	0 6 —	— Cos, per dozen	2 0-2 6
— Victoria, large	4 6-5 0	Mint, per dozen	2 0-3 0
— Argenteuil	3 0-3 6	— bunches	2 0-3 0
— Montauban, and various	1 0-2 0	Mushrooms, per lb.	0 6-0 8
Artichokes, Globe, per doz.	1 0-2 0	Onions, Egyptian, bags	6 0-7 0
Beans, English (Dwarf), lb.	1 0-1 2	— Green, per doz	1 6-2 6
— Channel Islands, per lb.	1 0 —	— bun.	1 6 —
— French	0 6 —	Parsnips, per bag	1 6 —
— flats	3 0 —	Parsley, per sieve	0 9 —
B. Beans, flats	4 0 —	— p. doz. bunches	1 0-1 6
Beetroots, p. bush.	3 0 —	Peas, English, sieve	8 0 —
— p. tally of 60	4 0-5 0	— flats	4 0-5 0
Broccoli, per dozen	0 6-1 0	— Blue, in flats	4 0-4 6
— crates	4 0-7 0	— Telephone, lb.	1 0-1 3
— pot	1 0-1 6	Petatos, Channel	
— bushel	0 6 —	Isles, Kidneys, cwt.	13 0-13 6
Cabbage, open, doz.	0 6 —	— Malta Kidneys, per cwt.	14 0 16 0
— open, p. tally	1 6-2 0	— Round, cwt.	10 0 12 9
— bush	0 4-0 6	— Canary Kids, per cwt.	13 0 16 0
— pots, open	0 6-1 0	— Lisbon Round, per box, all at	5 6 —
Cauliflowers, Dutch, per dozen	3 0 —	Radishes, Round, per doz. bun.	0 8-1 0
Cress, doz. punnets	1 6 —	— (home grown)	2 6-4 0
Colsworts, or Greens, per bushel	0 3-0 4	Rhubarb, doz. home-grown, natural	1 6-3 6
Carrots, in bags	2 6-2 6	Salad, small, punnets, per dozen	1 3 —
— New, bunches, per dozen	6 0-8 0	Shallots, per lb.	0 2 —
— Round, per bunch	0 6-0 8	Spinach, Spring, per bushel	1 0 —
Celery, old, per bundle	1 0 —	— Tomatoes, Eng., lb.	0 6-0 8
— new	1 9 —	— Channel Isles, per lb.	0 5-0 6
Cucumbers, p. doz.	2 6-3 6	— Canary, deep boxes	2 6-4 0
Endive, new, p. doz.	1 3-1 9	Turnips, new French, per bunch	0 5-0 8
Garlic, per lb.	0 4 —	Watercress, p. doz. bunches	0 4-0 8
Horseradish, foreign, per bundle	0 9-1 0		
Leeks, new, dozen bunches	2 0 —		

REMARKS.—Apples and Cucumbers slightly advanced in price, the cherries in pecks quoted above were very good bold fruit, of the Turkey-heart kind. Broccoli is now nearly gone, but please note Cauliflowers have commenced. English Peas above quoted were I believe from the West (Somerset); home-grown from Kent and other early spots are daily expected. Cabbage have been a low price all the season, and unless they have been of good colour they had better have been ploughed in, as there is no chance now of their becoming a leading vegetable. Among Apples the New York Pippin fetched top price.

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, Tasmanian, cases, various, comprising Sturmer, N. Y. Pips, Adams' Pearmain, Se. Nonpareil, F. Crabs, &c. ... 14 9 21 0	Grapes, English, Hambrough, lb. 2 0 3 0
— South Australia, comprising Wellingtons and various sorts, per case ... 15 0-21 0	— Channel Isles, per lb. ... 1 6-2 0
Apricots, per box ... 8 0-12 0	— Muscats, per lb. 2 6-5 0
Bananas, bunch ... 1 0-1 6	Gooseberries, per sieve ... 3 6-5 0
Cherries, per box ... 10 6	Melons, each ... 1 6-2 6
— pecks ... 4 0-6 0	Nectarines, doz. ... 9 0-18 0
Figs, per dozen ... 4 0-6 0	Peaches, per doz. (according to size) ... 12 0-18 0
	— Second quality 4 0-8 0
	Pines, each, from ... 2 6-5 6
	Strawberries, per lb. ... 2 0-5 0
	— 2nd quality ... 1 0-2 0

POTATOS.

Supply of New Potatoes gradually increasing, with a corresponding drop in prices. Jersey New Potatoes, 12s. to 13s.; Cherbourg and St. Malo, 11s. to 12s.; Lisbon and Malta Rounds, 8s. to 10s.; Canary Kidneys, 12s. to 14s. per cwt.; Old Potatoes, Duobair Maincrops, 150s. to 160s.; other Ware, 120s. to 145s. per ton. Foreign Ware, 4s. 6d. to 6s. 3d. per bag. John Bath, 32 and 34, Wellington Street, Covent Garden.

SEEDS.

LONDON: June 1. — Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., report to-day's seed market very thinly attended, with but little business passing. Clover seeds just now claim but little attention. For sowing Mustard and Rape seed there is a fair inquiry. Bird-seeds sell slowly. Tares still find occasional buyers. The new Florida Velvet Beans, of which there is a small quantity on the market, attract attention at 2s. per lb. There is rather more inquiry for Peas, Haricots, and Lentils, at unchanged rates. Other articles offer no subject for comment.

FRUIT AND VEGETABLES.

GLASGOW: June 1. — The following are the averages of the prices at this market during the past week: Apples, Canadian Spy, 24s. to 26s. per barrel; ditto, Russsets, 24s. ditto; ditto, Western States (Winesaps), 20s. to 22s. do.; ditto, Russsets, 18s. ditto; Grapes, home, 3s. 6d. to 4s. per lb.; ditto, foreign, 6d. to 1s. ditto. Vegetables: Cabbage, spring, 7d. to 10d. per dozen; Cauliflowers, Dublin, 2s. 6d. do.; Herbs, assorted, 1d. to 2d. per bunch; Mint, green, 6d. to 9d. per 1 lb. bunch; Onions, Dutch, 8s. per cwt.; do., Portugal, 14s. to 15s. per case; Parsley, 1s. to 1s. 6d. per stone; Potatoes, best, 1s. per stone; Carrots, 8s. per cwt.; Artichokes, 1s. 3d. per stone; Peas, 4d. to 5d. per lb.; Cucumbers, 4d. to 6d. each; Lettuces, round, 6d. to 1s. per dozen; do., Cos, 4s. do.; Radishes, 9d. to 1s. 6d. per dozen bunches; Horseradish, 1s. 6d. to 3s. per bundle; do., French, 9d. per stone; Mushrooms, 1s. to 1s. 2d. per lb.; Beetroot, 6d. to 7d. per dozen; Spinach, 1s. 6d. to 2s. per stone; Rhubarb, 2s. 6d. per cwt.; Turnips, Swedes, 4s. per bag; do., white, 10d. per large bunch; Broccoli, 2s. 6d. to 3s. per dozen; Greens, 3s. per ten dozen; Asparagus, 1s. 3d. per bundle.

LIVERPOOL: June 1. — Average of the prices at undernoted markets: — St. John's: Potatoes, 1s. 2d. to 1s. 4d. per peck; do., new, 1 1/2d. to 4d. per lb.; Peas, 6d. do.; Asparagus, 2s. 6d. to 3s. per 100; Cucumbers, 4d. to 6d. each; Strawberries, 8d. to 1s. per lb.; Gooseberries, 4d. do.; Cherries, 6d. do.; Apricots, 1s. 6d. per dozen; Grapes, home, 2s. 6d. to 3s. per lb.; do., foreign, 8d. to 1s. do.; Pines, home, 4s. to 6s. each; Mushrooms, 1s. 3d. per lb. Birkenhead: Potatoes, 1s. 4d. per peck; do., new, 1 1/2d. to 2d. per lb.; Peas, 5d. do.; Asparagus, 2s. 6d. to 4s. per 100; Cucumbers, 2d. to 6d. each; Apricots, 1s. 6d. per dozen; Gooseberries, 4d. per lb.; Cherries, 8d. do.; Strawberries, 6d. to 1s. 6d. do.; Grapes, home, 2s. 6d. to 4s. 6d. per lb.; Pines, home, 4s. to 10s. each; do., foreign, 4s. to 6s. each; Mushrooms, 1s. to 1s. 6d. per lb. North Hay: Potatoes, per cwt., Jersey, 12s. 6d. to 13s.; Giants, 4s. 3d. to 4s. 9d. do.; Main Crop, 5s. 4d. to 6s.; Bruces, 5s. to 5s. 6d. do.; Onions, foreign, 6s. to 6s. 6d. do.; Parsley, 4d. to 6d. per dozen bunches; Lettuce, 6d. to 8d. per dozen; Cucumbers, 2s. to 3s. per dozen; Cauliflowers, 1s. 6d. to 3s. do.; Cabbages, 4d. to 7d. do.

CORN.

AVERAGE PRICES OF BRITISH CORN (per imperial qr.), for the week ending May 28, and for the corresponding period of 1897, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1897.	1898.	Difference.
s. d.	s. d.	s. d.	s. d.
Wheat	23 2	47 9	+ 19 7
Barley	21 3	26 5	+ 5 2
Oats	17 10	21 5	+ 3 7

GARDENING APPOINTMENTS.

MR. W. HASKINGS, for the past two years Gardener at The Limes, Lower Edmonton, as Gardener to J. A. KNIGHT, Esq., Holme Chase, Bletchley, Buckinghamshire.

Mr. C. A. BAYFORD, gardener for the past two-and-a-half years at Gleaston Court, Ross, as gardener to the EARL OF LICHFIELD, Shugborough Hall, Stafford.

Mr. GEORGE BAKER, late Foreman at Lambton Castle Gardens, Fence Houses, under Mr. HUNTER, as Gardener to W. T. DOXFORD, Esq., M.P., Grindon Hall, Sunderland.

NOTICES TO CORRESPONDENTS.

BOOKS: T. C. M., Belfast. You would find MM. Vilmorin & Andrieux's *The Vegetable Garden*, published by John Murray, Albemarle Street, Piccadilly, a much superior work to the one you mention, although it treats in matters of culture of French methods. Abundantly illustrated. Price about 15s. A book of moderate price is *The Culture of Vegetables and Flowers from Seeds and Roots*, by Sutton & Sons, Reading, seventh edition; it is descriptive of English methods chiefly. — *Nurseryman. The Nursery Book*, by L. H. Bailey, and published by the Rural Publishing Co., New York; *The Fruit Manual*, by R. Hogg, published at offices of *Journal of Horticulture*, No. 12, Mitre Court Chambers, E.C.; *The Dictionary of Gardening*, by G. Nicholson, and others, published by Upcott Gill, 170, Strand, W.C.; *Orchid Growers' Manual*, by B. S. Williams, and sold at the Victoria and Paradise Nurseries, Upper Holloway, N. *The Book of the Rose*, by W. Paul, Waltham Cross, Herts, and sold by him; *Book-keeping*, by Pitman; *A Manual of the Coniferæ*, by J. Veitch & Sons, obtainable at the Royal Exotic Nursery, King's Road, Chelsea, London, S.W. These are only a very few indispensable books out of a great number which every horticulturist, commercial, or other, ought to possess. All the gardening papers contain text as well as advertisements.

GOOSEBERRY WITH FUNGUS ON THE LEAVES: J. B. The fungus *Aecidium grossularia*, figured and described in our issue for June 20, 1891. The usual remedies against fungus may be used, viz., sulphur, the Bordeaux Mixture, sulphide of potassium—this last at the rate of 1/2 oz. in one gallon of water.

GRAFTING: B. M. D. The inner layers of stock and scion should be brought into contact; and in the case of budding, the two layers that meet should be identical.

GRAPES: T. Evans.—The Grapes are attacked by the Vine Mildew (*Oidium Tuckeri*), described and figured in this paper by Rev. Mr. Berkeley in 1847, p. 779, and frequently referred to since. Use some of the sulphur remedies given in these pages last August.

MUSHROOMS: Jules Gachelin. We may suppose that the Mushrooms would grow larger than two inches across if you would let them remain on the bed. Perhaps, as you suggest, they grow too thickly in parts, and a thinning-out of the "buttons" would certainly tend to increase in size in those that are left.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—C. B., Chester. *Jasminum simplicifolium*, more commonly known in gardens as *J. gracile*.—W. T. *Choisya ternata*. Hardy in most places.—Bucks. The flowering shrub outdoors, *Prunus Padus*. The Fern, *Adiantum Waltoni diffusum*. The box was completely smashed, and others may have fallen out.—H. D. The *Coreopsis* seems to be a slight improvement on the ordinary good type of *C. grandiflora*.—H. G., R. K., S. R. *Prunus Padus*.—B. H. J. Probably, *Geum coccineum*.

PEACH LEAVES HOLED: J. D. & H. G. See answer to W. T. (p. 336) of our last issue.

PEACH-TREES IN ILL-HEALTH: G. T. If you are sure that the rotten wood is breeding fungus detrimental to the living roots of the Peach-trees, and this is very likely to be the case, nothing you can do short of lifting the tree in early autumn will be of any avail. At that operation every bit of wood found in the soil should be gathered up and burnt, and a considerable proportion of fresh loamy soil incorporated therewith.

RED SPIDER ON VINES: M. T. If the acarid has become numerous on the foliage, and there are Grapes on the Vines, you might remove the former with soap-suds and a piece of sponge, or you may vaporise the Vines with the XL All liquid. Syringing the leaves from below tends to keep red spider in check, but it is seldom sufficient in itself to keep all of the foliage clean, and unless it be carefully

performed the Grapes suffer from it in appearance. The use of sulphur in the evaporating troughs, and smeared, in union with whitewash on the hot-water pipes and walls, tends to make the air in the vicinity distasteful to red spider, but it will not drive them out if once they effect a lodgment on the Vines. The best means to employ, therefore, are vaporising, syringing, and moderate applications of clean rain water, with an elbowed nozzle on the syringe.

RIPENING OFF BULBS OF LILIES: J. G. When the flowering is past stand the bulbs, if in pots, in a warm sheltered place out of doors, affording water as usual till the first signs of yellowing in the leaves is observed; then afford it in gradually increased intervals of time, and when general decay sets in withhold water entirely; cut the stems down to within six inches of the soil, and turn the pots on their sides, and treat in exactly the same manner as Cape and fancy Pelargoniums or Callas. The bulbs should remain in the soil till a beginning is made with repotting in September. In the case of *L. longiflorum* and its variety *Harrisii*, the bulbs may, in order to lengthen the season of flowering, be repotted at intervals from that date till the end of the winter; and till even a much later season if you have the convenience of a cool chamber, such as that in which dead meat from America is imported, only the bulbs must not be frozen. You can only obtain one crop of flowers from the bulbs in twelve months. The flowers cannot be hastened by forcing the bulbs, but the temperature of an intermediate house—say 50°-55° by day and 45° by night, may be afforded these and other Lilies after the flower buds have formed. Mice and rats are apt to eat the bulbs in winter if other food be scarce, and if there are signs of this, tiles or slates should be placed over the repotted and the undisturbed bulbs. Mice and rats are particularly partial to those of *L. auratum*, but they are usually impartial in their tastes. In the case of very early flowered bulbs, the ripening-off must be carried out under glass, but the potsful of bulbs should be turned on their sides against a sunny wall like the others in April.

SEEDLING CARNATIONS: H. E. No. 1 is a very large flower, and of a pretty tint of salmon-pink, but it is a calyx-splitter, and would be unpopular from this cause. It has very little or no scent either. The other two varieties are pretty, and should be valuable for cultivation in the border.

SITUATION IN BOTANIC GARDEN: E. A. C. In each case you should address the Director, affording copies of certificates and other information in regard to age, gardening experience, &c.

SQUIRRELS' (HARES') FOOT FERN: H. J. G. This name is usually applied to *Davallia canariensis*.

VINES: *Roumynede*. Your Vines are attacked by the Downy Mildew (*Peronospora viticola*). Remove diseased leaves as far as safe and destroy them. Though it is rather late to save the crop, a dilute Bordeaux Mixture, prepared as described in this paper last August, might be sprayed on the Vines every two or three weeks till the fruit is off use the Bordeaux Mixture freely. Next season another spraying should be given just after the first leaves have fully expanded, and again after the flowers have set. If the mildew appears again, resume the spraying at once. A little more air and a slightly drier house might also help you this year. The Gloxinias on arrival here bore the same fungus; try a similar treatment with them. If the mixture used should stain the foliage, use it more dilute. W. G. Smith, Leeds.

COMMUNICATIONS RECEIVED. — W. G. C.—J. Dent—Dr. Gudmunds, Apeldoorn.—F. T. W.—G. H. Trollius.—L. S.—M. C. C.—W. C. W.—M. T. T.—Mr. Budds (next week).—W. B.—G. L. L.—P. M. T.—Dr. W.—C. T.—H. St. J. K.—Prof. Penhallow, Montreal.—J. G.—W. B.—Dr. Weiss.—S. B. D.—J. W. B.—H. St. J. Jackson.—F. Y., Bradford.—G. Abbey.—E. J.—Prof. G. Henslow.—W. Swan.—E. S.—C. T. D.—E. A., Dublin.—J. Backhouse & Sons.—S. M.—A. B.—S. H.—P. B.—J. H. H., West Indies.—H. G.

CONTINUED LARGE INCREASE in the CIRCULATION of the "GARDENERS' CHRONICLE."

Important to Advertisers.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper, MORE THAN DOUBLED, and that it continues to increase weekly. Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS at home, that it has a specially large FOREIGN AND COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE

Gardeners' Chronicle.

SATURDAY, JUNE 11, 1898.

THE CHRONICLE OF A LITTLE CORNISH GARDEN.

MAY.—The most significant flowers in my garden are the Laburnums "rich in streaming gold," and the pointed blossoms of the Lilacs "rising delicate, with the perfume strong I love." I am afraid that most people are still unfamiliar with Whitman's great poem "When Lilacs last in the door-yard bloom'd"; but to those who have read it, and reading, understood, the appearance of the sweet Lilac flowers must ever recall its rhythm and profound motive:—

"Lilac and star and bird twined with the chant of my soul,
There in the fragrant Pines and the Cedars dusk and dim."

Nowhere else is the advent of death welcomed by so virile a voice:—

"Prais'd be the fathomless universe,
For life and joy, and for objects and knowledge curious,
And for love, sweet love—but praise! praise!
praise!
For the sure-enwinding arms of cool enfolding death.

Dark mother always gliding near with soft feet,
Have none chanted for thee a chant of fullest welcome?
Then I chant it for thee, I glorify thee above all,
I bring thee a song that when thou must indeed come,
come, come unfalteringly.

* * * * *
The night in silence under many a star,
The ocean shore and the husky whispering wave
whose voice I know,
And the soul turning to thee, O vast and well-veiled death,
And the body gratefully nestling close to thee."

The interests afforded by association are half the value of a garden. In her very interesting *Pot Pourri from a Surrey Garden*, Mrs. Earle quotes an Irish peasant, whose cabin had just been transformed into "the graceful neatness of an English cottage," as saying "it is all very kind, but the good lady does not know how dear to a poor man is everything that reminds him of the time when he played instead of working." Taken in its widest sense this is most true. Every Laburnum-tree in bloom takes me back at once to my old home, where a Laburnum over-arched an entrance, and the memory of it is full of associations of my life as a boy. I find, indeed, that I have unconsciously planted in my garden almost every flower which was grown at my old home.

The weather has been remarkable. Cold cutting winds have spoilt many of the flowers

of April and May, to which I had looked forward with pleasant anticipation. For about a week my late Tulips were glorious, but then one morning I came down to see them bruised and stained and broken. Still, things might have been worse, and I was able to see the picture at its best, even though for a short time only. Gesner's Tulip came fully up to my expectation, the brilliant red flowers showing up well against the foliage of tufted Pansies with which they were carpeted. The other self-coloured Tulips were most successful, some yellow Darwin Tulips being particularly effective. Another Tulip which has done well with me is the rosy-white T. Ciusiana, the colour of which is very beautiful and delicate. As I have said, the wind and pelting rain quite spoilt all the Tulips, but I fancy they are flowers which one would not wish to see constantly for many weeks.

The Anemones were scarcely damaged owing to the more flexible character of their stems. The season, like every season, is not at all what it should be according to our preconceived notions. The common idea of the character of the months is all superstition and error. The really great poets and prose writers, who have given us our most valuable and permanent descriptions of country life and affairs, have generally been cockney-trippers like Walton; or, at any rate, natives of London, like Chaucer, Spenser, Milton, and Herrick. The countryman, born and bred, is usually unable to feel the poetry of his surroundings—he cannot see the wood for the trees—and hence he is usually unable to produce great literature dealing with the facts of which he knows most. Therefore, it is that our ideas of "spring," "the month of May," and the rest are not in accordance with the facts.

Looked at from a little distance, the greatest show in my garden at present is given by the yellow Wallflowers, of which I have a number of great bushes. Yellow is a very effective colour when seen even from a considerable distance. Mrs. Earle's advice is good where she says that the smaller the garden the more essential it is to get a succession of colour.

The mass of double Narcissi of which I spoke last month is now beautiful, and pleads strongly for the artistic recognition of double flowers. Nevertheless, charming as are these flowers in a mass of seventy or eighty blooms, with their delicious scent wafted hither and thither by the breezes, I still hold the opinion that as individual flowers they cannot for a moment bear comparison with the single Poet's Narcissus.

A very common flower which is now in bloom does not receive the homage which is its due. I refer to the little evergreen Saxifraga umbrosa, London Pride, None-so-pretty, or Queen Anne's Needlework, as it was once called. I have only one great spreading clump, developed from a single plant in the course of the last two or three years; but this clump is at present one of the most interesting and beautiful objects in the border. From the pretty green rosettes spring numerous tall quaint hairy flower-stalks, branching in Japanese fashion, bearing panicles of the most exquisite little jewels of flowers. Each of the five small white petals is dotted about its centre with red, and towards the centre of the flower with yellow; whilst the erect white stamens are terminated by anthers coloured terra-cotta. The frequency of the plant's occurrence, and the fact that the flowers require close inspection to be properly appreciated, probably accounts for London

Pride being commonly considered a sort of weed. Near the clump of London Pride is a "blue cataract" of Veronica prostrata, hanging over some stones. This is the first to bloom of several Veronicas which I recently planted, and it already appears well established.

The golden and sulphur Eschscholtzias are beginning to produce a distinct effect. The flowers are larger than last year, and again than the year before. They are with me, and in the situation I have chosen, strictly perennial, although usually described as annual. Each autumn, after they have finished flowering, I simply cut them down with shears, and they are now quite large bushes, of the freest and most luxuriant growth. The Eschscholtzias, like many other cup-shaped flowers—Anemones, Poppies, Rock-Roses, &c.—produce no honey, but are visited by insects for pollen only; hence their simple shape, having no nectaries to protect from marauders by various quaint devices and modifications of form.

Many of the tufted and other Pansies are sheets of beautiful flowers. Of the Violas I have, I like best the lavender Duchess of Sutherland, the sweet-scented, cream-coloured Sylvia, and the appropriately named White Duchess; but when all are very beautiful, it seems invidious to select a few.

Pæonies I have not yet planted to any extent, but propose getting a few more next autumn. The single European varieties have been in flower for some little time, and have all done well, the best I have being a satiny-white one known as Emodi, which I believe—to be strictly Irish—is really a Himalayan species.

Many weeks ago I had flowers of the pink Rosa alpina, and blooms on my Gloire Dijon, and there are now several Roses fully open, including the beautiful buff Safrano a very vigorous Tea, the unique Austrian Copper Briar, with dull-red golden petals, resembling no other flower, and also several of the summer Roses; but, of course, the Roses will not be at their best till later.

The Silene pendula which carpets the Rose-border is an expanse of pink, but the rich soil has made it grow rather too luxuriantly for a carpeting plant, and next autumn I propose to use Primroses for the border instead. These will commence to flower much earlier, and will be of lower growth. A couple of plants of Geum chiloense which I sowed under the name of G. coccineum are just beginning to flower. They are most satisfactory plants, about 18 in. high, bearing panicles of brilliant scarlet flowers.

The dwarf Phloxes are sheets of pink and white flowers, the leaves being quite hidden by the masses of bloom. These, again, have quickly established themselves, and I shall get any other species or varieties I can. That is, without doubt, the wisest course to follow in amateur gardening. Try by experiment what plants really flourish under your conditions of soil, climate, and the rest, and then grow the best of the allies and varieties of those plants. Still, there is an irresistible impulse in every gardener's breast to try to grow any flowers he has hitherto failed with; but, if he be wise, he will conduct his essaying on a reasonably small scale rather than waste money in large consignments of plants doomed to serve as manure for his borders.

Oxalis floribunda is a mass of rose in the sunshine, but for some twenty-three hours a day the flowers are closed; still, as it blooms all through the summer, I suppose it will sleep a little less when we have more sunshine.

It is surprising how few people with large gardens make any considerable use of their opportunities. In looking round the capacious grounds of acquaintances, I am constantly struck by the small number of flowers grown in proportion to the situations offered. My little plot then seems to be quite cultivated. At the same time, there is no getting over the fact that no amount of good gardening will compensate for the advantages which space, trees, grass, and situation give.

The curious and beautiful varieties of *Mimulus* are now flowering in every shade of red, brown, and yellow. The *Mimulus* is much like an Orchid in its elaborate arrangements for placing its pollen on insect visitors, and so promoting cross-fertilisation. The hairy petals, especially the lower one, keep out unwelcome insect-robbers.

The Forget-me-Nots help to brighten the garden, and assist the general spring aspect. The early Forget-me-Not (*Myosotis dissitiflora*), and the wood species (*M. sylvatica*), are the two which I have raised, and both are very bright and free-growing. I mean next season to try *M. lithospermifolia*, said to bear the largest flowers of any Forget-me-Not, and the dwarf alpine species (*M. alpestris*). The interesting habit of Forget-me-Nots of moving aside the old flower-stems, and even the individual flowers when fertilised, helps to keep the plant continuously bright with flowers in its prime. The plant's object in so doing is, of course, to present new flowers to insect visitors, and not to please useless human eyes.

The Pinks are beginning to open, and are developing their delicious scent. I am especially looking forward to the single ones. Some autumn-sown Sweet Peas are making good progress; many Irises are beginning to show colour, and a number of summer flowers are sending up flower-stems ready to unfold in a few weeks. The Deutzias and Mays have not yet expanded their blossoms, but a few days will probably make a difference.

The leaves of the dwarf fruit-trees now help very materially to furnish the garden, and to afford a background for the tall herbaceous plants of the borders. Such a mixed system of gardening appeals to me as the ideal for ordinary mortals. It is of a kind with the idea of art applied to the utilities of every day, rather than with the art which we may call *diletante*. It resembles rather a tastefully-furnished living-room than an ornate and vulgar drawing-room, bearing no relation to ordinary life. *Harry Roberts.*

NEW OR NOTEWORTHY PLANTS.

DORSTENIA ARABICA, *Hems.*

THIS is one of the most curious species of a remarkable genus, and was introduced to the Cambridge Botanic Gardens by the kindness of Mrs. Lort-Phillips. It forms a stout fleshy stem of several inches in height, bearing a few leaves only, of oval outline, dark green in colour, with a tendency to a greyish tint, and with sometimes a shade of purple. The receptacles are curious on account of the barren spoke-like extensions, almost evenly rayed from the centre. *Dorstenia arabica* was not a published name up to the year 1885, but a scrap in the Kew Herbarium is so designated by Mr. Hemslay, and certainly the plant here figured is identical with that. It was sent from Somali-land. The accompanying illustration [not reproduced] was kindly drawn for me by my friend Mr. F. W. Burbidge, M.A., V.M.H.

HUERNIA SOMALICA, *N. E. Br.*

The plant here represented is so like a *Stapelia*, both in its vegetative and floral parts, that for garden purposes few would be disposed to quarrel with its position if placed in that genus. *Huernia* differs, however, in having a broadly campanulate corolla, while that of *Stapelia* is either rotate or reflexed. The corolla, too, of the former has a toothed sinus, while that of the latter is naked, and these differences, together with further unlikeness in the corona, require a distinction to be made. The plant is decidedly attractive among its congeners, having a large brown flower with polished surface, and stout greyish-green stems. It was introduced to the Cambridge Botanic Gardens by Mrs. Lort-Phillips. The above name was kindly given at Kew. *R. Irwin Lynch.*

SENECIO HANBURIANUS, *nov. sp.**

The subjoined description of a new species of *Senecio* has been sent us by Mr. Diuter, who must be a bold man to add to the many hundreds of species of this genus.

THE GERMINATION OF SEEDS.

IN the article signed "W. W.," in your issue of March 26, 1898, reference is made to loss of Rubber-seeds in transport, to keeping seeds in canvas-bags, and to the keeping of seeds in hermetically-sealed tins; but no information is given as to why seeds keep best in canvas-bags, what caused the loss of the Rubber seeds, and why it is "fatal" to put seeds into hermetically-sealed tins. Further, the writer says that old, weak seeds of doubtful vitality are more likely to germinate under the stimulating influence of a high temperature than if given an ordinary temperature.

Now I have not the slightest doubt that in these statements the writer records the results of his own experience, and would probably be quite ready to admit that his article did not deal fully with all points of the question, for, *per contra*, I am able to state that Rubber-seeds have been sent from the tropics to England for distribution, without loss, on numerous occasions; that seeds in canvas-bags will not keep, and that hermetically-sealed tins are an excellent means for the preservation of seeds. Your correspondent therefore should not be satisfied until he has discovered the reason for the loss he records, the reason why his seeds keep best in canvas-bags, and the reason why hermetically-sealed packages are sometimes fatal; for when it can be truly asserted that the contrary is frequently the case, this proof is certainly incumbent on him.

It is a well-known fact that circumstances sometimes alter cases, and in my own particular field (a tropical garden) the experience I can record differs essentially from that put in print by your correspondent.

On several occasions I remember sending home, by request, consignments of Nutmeg-seeds early in the year. The report on these seeds showed that they had suffered in transport, and all had become rotten. Now the seeds were packed in the same way and in the same condition as others sent several months later, or during warmer weather, which latter consignment arrived safely, and grew well. The inference therefore is fairly clear that the seeds sent in cold weather were, in fact, chilled; and subsequent trials have proved the case more clearly, for it is found that if tender seeds are sent from the tropics to arrive in cold weather, there is great danger

* *Senecio Hanburianus*; suffruticosus; caulibus carnosis glabris ramosis, 5 poll. longis; foliis 8—13 poll. longis, chordiformibus leviter sulcatis mucronulatis glaucis; cymis elongatis laxis 4—8 cephalis; pedicellis elongatis squamulosis 1-cephalis, capitulis subcylindricis basi 8—10 patente bracteolatis discoideis homogenis circ. 45 floris, involucris striatis circ. 13—15 phyllis disco vix brevioribus, foliolis linearibus obtusiusculis, 3 nerviis marginibus late membranaceis; floribus pallide ochroleucis, corollæ lobis lanceolatis recurvatis; staminibus exsertis, styli ramis apice truncatis; achænio albo pubescente.

Species affinis *Senecione chordifolio* Hook., attamen distinctissima. Patria ignota, verisimiliter ex Africa capensi introducta, culta in horto Mortolensi. *Diuter.*

of their being spoiled; while if they are sent during the summer months, much more success is attained.

To hang our seeds in a bag in a dry place in a medium uniform temperature is with us an utter impossibility. In the first place, we have no dry place, for our air contains on the average for the year over 77 per cent. of moisture, and often at some seasons for long periods of the day stands at saturation-point. In the next place, our temperature reads 87° 7" (mean max.), and 70° 7" (mean min.), and a bag of seeds hung up in the most desirable place to be found would soon be perfectly useless, for in a few days the seeds will have lost their germinative power from the alternations of humidity and heat. A high temperature carries a larger amount of humidity than cool air, and I would ask "W. W." if he does not think it probable that this humidity is as great a factor in seed-life, as he must I think know it to be in plant-life, and that germination depends more upon being subjected to its influence than to any particular range of temperature, and that temperature only materially affects seeds when aided by moisture. In the case of the Nutmegs referred to, the chill was undoubtedly caused by their being packed moist; but if they had been dry the result would have been the same, as it is well known here that once a Nutmeg becomes dry, or as dry as it will get, it has lost its germinating power, and the only possible way to preserve them is to keep them moist until germination occurs. If, however, the temperature is considerably lowered, decay at once sets in, for it acts as a check upon growth, and a check in this stage means destruction. In the tropics it is almost impossible—at any rate, during the rainy season—to keep seeds so as to maintain their germinating power; and this is often destroyed by other means than by temperature and moisture, for we have to contend with numerous insect enemies, such as ants, weevils, &c., which, as one would think, maliciously eat out the embryo.

During rainy weather there is sufficient humidity in the atmosphere itself to induce slow germination, which may, or may not be perceptible, and when this has once taken place, the dryness or alternation of humidity and dryness will kill the seeds, if they are not in a situation to maintain growth. Again, the hermetically-sealed tin may be at times, and under certain conditions, deadly for seeds, but there can at the same time be no possible question as to its usefulness for preservation purposes. Its success depends, of course, entirely upon the state of the atmosphere at the time the sealing is effected, and on the condition of the seeds when sealed. If tins are sealed when the air is saturated with moisture, rotten seeds may be expected when the tins are opened in the tropics; but if the seeds are sealed on a dry day, or in rooms where the air is quite dry, they will certainly keep good for a greater length of time than if put up in any other way. If growers could only persuade seedsmen to take a lesson from the biscuit-makers, it would be a great advance made. Ginger-nuts or other biscuits keep perfectly well in the patent tins easily opened with a thumb-piece, and so would seeds, if put up in a proper way in similar packages, and the package would cost little more than the ordinary envelope, and would certainly be accepted as a boon by growers in the tropics.

What "W. W." says of old seeds may be true, but if he could witness the result of sowing a row of aged Pea seeds, as occurs with us occasionally, I am sure he would hardly venture to urge a high temperature for germinating them. They start quicker, it is true, than in a temperate atmosphere, but so also do the thousand-and-one micro-organisms with which they are surrounded, which soon destroy their vitality; the latter, however, are possibly not present in such numbers under artificial conditions as they are in a tropical country.

The majority of tropical seeds have a vitality of an evanescent character, and to dry them is at once to destroy them; but to this there are notable exceptions. We have an illustration of this in the seeds of *Guilandina bonducella*, L. This seed is furnished with a testa impermeable to either water or air, which



FIG. 135.—TAGETES LACERA.

probably preserves its vitality as long or longer than any other tropical seed, owing to the fact of its being "hermetically sealed" in a proper manner. *J. H. H., Trinidad, April, 1898.*

TAGETES LACERA.

(BRANDEGEE), LOWER CALIFORNIA.

A SUB-SHRUBBY, half-hardy perennial, introduced and raised from seeds by Col. John Ross, C.B. (John Ross of Blagenburgh), of Rostrevor House, Rostrevor, Warrenpoint, co. Down, Ireland. Col. Ross kindly sent a plant in 1897 to the Botanical Gardens of Trinity College, Dublin, which flowered in a greenhouse in February, March, April, and May, 1898. The flowers are small, with clear orange-chrome or yellow florets, and freely produced in lax terminal panicles, and if touched they have the characteristic odour of the French and African Marigolds; but the plant is of a much more graceful character (fig. 135). Our specimens came from Mr. Burbidge, who is anxious that all the credit of its introduction be given to Col. Ross, C.B., and he further informs us that the plant has passed through the mild winter of 1897-98 in the open in Col. Ross' Garden at Rostrevor, Co. Down, Ireland, and adds, "If one may judge from its neat and perennial habit, and its free-flowering character, it would appear to be a distinct addition to half hardy shrubby Composites, and it may be available for hybridising purposes with the annual species; or even cross-bred seedlings from itself may lead to some improvements in the size and colour of its flowers, as the plant evidently is a very free seed bearer."

METHODS OF PLANT PROPAGATION.

(Continued from p. 213.)

BULBOUS PLANTS.—In my last paper I confined my remarks to hardy or open-border plants, which, as noted, can almost be left to take care of themselves as regards perpetuation; but this cannot be said of many indispensable bulbous ornaments of our stoves and greenhouses. I will, therefore, venture to give a few simple methods of propagating them, which, to those who know, may be taken simply as reminders, while those who do not will doubtless thank me as they have done before.

Lilies.—The Lily genus may be taken first. All of these may be increased by their bulb-scales, as is proved by the good price often realised by the box or boxes of "pieces" which generally concludes an auction sale of these bulbs, especially if the varieties offered have been high-class and rare.

The scales should be bedded in sandy loam, watered in, and then placed in a moderately warm pit, when most of them will make one little bulbil, or perhaps more, at the base of the scale, which being allowed to grow for one year more, may be detached, and potted-up five or six together in a 48-pot; or in the case of the hardy kinds, be lined up in beds or borders, and merely protected in the winter by a thick layer of cocoa-refuse or leaf-mould, and left till they attain to flowering size. Lilies of the tigrinum section, especially the old-fashioned Tiger-Lily of our gardens, give us plenty of little bulbils on their flower-stems. These should be left attached till the resting-period of the parent-bulb arrives, when they may be detached, and potted or planted up for stock. *Lilium lancifolium* does not often make bulblets, but may be coaxed to do so by earthing-up the stem with some light soil, and then shortening it, so as to leave only enough foliage to keep the sap moving. Other Lilies, particularly *canadense*, *longiflorum*, and its useful variety from Bermuda, called *Harrisii*, as a rule, when doing well, make quantities of bulb-offsets, which may be removed, and potted-up in stores, or put aside in coco-fibre or sand, and planted up in the spring. The noble *Lilium auratum*, especially imported examples, has a habit of flowering, and then breaking up into a perfect nest of little bulbs; these should be carefully separated when the flower-stalk is ripe, and potted

up or stored. *Lilium auratum* seeds very freely, especially if the grower will take the trouble to use the pollen from other flowers of the same species, and artificially fertilise the stigma. I raised many from seed when the bulbs cost 14s. each; it was then quite worth while. Allow the fruit to become so ripe that it bursts and shows its contents, then gather and lay singly in trays in the sun, when the seed will drop out easily from the seed-vessel, and may be collected and fanned to get rid of the light useless seeds, and the rest rubbed between the hands, to take off the thin part or wing, and the plump oval kernels sown in boxes or pans. If well-cared for, generally most of these will flower the third year, and not unfrequently a few choice varieties reward the raiser, the noble *auratum platyphyllum* and others being seed variations.

No one in England as yet, so far as I can ascertain, has tried to cook this Lily, though I read they are thus utilised in Japan. Will some one who knows divulge this, and so add to our vegetable menu?

So much for Lilies proper, though popularly most of the following subjects are called Lilies by the uninitiated. For instance, the "Scarborough Lily" (*Vallota purpurea*), so useful for its early autumn flowering, its trivial name being "purpurea," but why, I know not, unless it be from the colour of the leaf and flower-stalks, as they emerge from the crown of the bulb. This, properly treated, produces quantities of small bulbs at the base of the parent, which, at the time of repotting, may be broken off and potted-up, or nursed in pans.

A variety with large flowers, softer in colour, larger, and not so deeply crenate as the type, with a conspicuous white centre, is known in my neighbourhood as Gilbert's variety, but was sent out as a novelty by Mr. W. Bull under the name of "eximium." This is far preferable to the old form, and makes a noble specimen, when well flowered, to associate with *Allamandas*, *Dipladenias*, *Eucharis*, &c., making a telling addition to a collection of stove and greenhouse plants in flower for autumn exhibition.

The hybrid *Amaryllis*, of which Veitch, Ker, Williams, and others have given us within the last few years so many grand examples, may all be increased in the same simple manner, and I have found that starving, both as regards manure and water, induces them to make offset bulbs, especially after they have flowered; while splitting the bulb from the base about half an inch up into four to six segments, according to its size, will also cause the production of small bulbs, but it should be done when the bulb is in full growth and vigour, without lifting it from the soil in which it is potted, the bulb being allowed to attain to its resting time before the offsets are removed.

Crinum and *Pancratium*, as a rule, make plenty of side-bulbs, and these should be allowed to grow beside their foster-parents till large enough to remove and repot. *P. fragrans* and *P. illyricum* are perhaps the most useful generally met with, but to flower these year by year attention must be given to their periods of growth and rest. With due deference to growers whom I know hold quite contrary views, the useful *Eucharis amazonica* gives better results if allowed to dry and rest, so that at least the greater part of the foliage dies down. Then is the time to take off all the small side-bulbs, and clean them to repot into some fresh hazel loam and fibrous peat, and after about three weeks or a month's rest, to put them into gentle bottom-heat, when, as soon as the pots are well filled with roots, they will generally flower.

A novel plan, culled from the new American gardening paper, *The Weekly Florists' Review*, is, I think, worth a trial on this side of the herring-pond. "After flowering (about June) the pots of bulbs are shaken out, and the single bulbs selected and planted in a warm and rich sheltered border, allowing enough space between the bulbs for cultivation and care. Early in the autumn the bulbs are taken up, and repotted firmly in fresh turfy loam. In a short time the flower-spikes will begin to push up, or this may be retarded by keeping the pots in a cool house." Allowing for difference of climate, why

should not this plan succeed in Britain, and would it not probably rid us of the mite?

Cliveia or *Imatophyllum*, of which there are now at least a score of fine varieties, introduced since *Cliveia nobilis* was sent us from the Cape in 1823, is one other bulb that increases regularly and surely if well cared for, and kept clean from mealy-bug and other pests. The side bulbs may be removed by a sharp knife as soon as the flowering period is over, and potted and kept quiet for a while, and then encouraged to grow by the aid of heat and stimulants. When they cease to produce more young leaves from the crown, withhold water for a while, and then the flower-spikes will soon appear emerging flattened from between the handsome curved leaves.

If assisted by fertilising the flowers by pollen taken from other individuals, *Imatophyllum* miniatum seeds freely, producing deep plum-coloured or red drupes. When these are quite ripe, open them and take out the solitary seed, and sow in deep pans at once. They will germinate the following spring, and the young plants will generally follow the third year. I raised a few good varieties in this way, which have passed into trade through various channels.

There are many more bulbous plants, as *Hæmanthus*, *Daubenyas*, *Cyclobothras*, or *Calochorti*, but these are so seldom seen outside botanical collections that it would be of little use to indicate their method of propagation, while the *Calochorti* are imported every year by some firms and sold by auction at the Mart; sad to say, my experience of them is that they flower, and then gradually disappear, a circumstance much to be regretted, as some are very beautiful, and well deserve their common name in California, "The Shell Lilies." If seeded, would the progeny raised from this be more robust in constitution, or are our winters too wet for them? *Experience*.

(To be continued.)

CULTURAL MEMORANDA.

SOWING SEEDS OF ANEMONE FULGENS, HORTENSIS, &c.

To sow in shallow boxes filled with light loamy soil, and to transplant, is perhaps better than to sow in a bed in the open. The seeds after being rubbed in sand to separate them, should be dibbled in at 1½ inches apart, and slightly covered with fine soil; the boxes may stand in a cold frame till the plants are large enough to be transferred to the nursery-beds. After the seedlings are established, water should be copiously applied in dry weather, and at intervals liquid manure may be afforded. A bed for these plants should be heavily dressed with decayed manure, and its position should be rather moist than dry, and the soil of a good depth. In cold and heavy soils, it is good practice to mix leaf-mould and sand with the staple, in the upper part at least.

Anemone fulgens may be advantageously flowered in pots, but it may not be subjected to a high temperature. Kept free from frost in cold frames during winter, the tubers flower very early, and are very useful for furnishing flowers for cutting and other purposes. *H. Markham, Northdown, Margate.*

LARIX LYALLI.

THE illustration on p. 357 represents a group of the alpine *Larix Lyalli* growing near the shores of Lake Agnes, in one of the wildest parts of the Rocky Mountains of Southern Alberta, at an elevation above the sea of nearly 7000 feet.

Larix Lyalli, which is distinguished from the nearly related *Larix occidentalis* by its tetragonal leaves and tomentose branchlets, was discovered in 1860 by David Lyall, the surgeon of the British Commission which marked the northern boundary of the United States west of the Rocky Mountains. It is a small tree, rarely seventy-five feet in height, with a trunk generally 18 or 20 inches, but occasionally 3 or 4 feet in diameter, and remote, palmately divided, exceedingly tough, persistent branches

thin, dark red-brown scaly bark, cones from 1½ to 2 inches in length, with conspicuous exserted purple bracts and scales, fringed on the margins with matted white hairs. *Larix Lyalli* grows only near the timber line, at elevations between 4,500 and 8,000 feet above the level of the sea, and is distributed from Southern Alberta and the interior of Southern British Columbia southward along the Cascade Mountains, and through northern Washington to Mount Stuart, one of their eastern spurs at the head of a fork of the Yukima River. In Alberta this alpine Larch grows on steep slopes and benches, usually facing the north, either singly or in groves of a few hundred trees, and alone or mixed with Engelmann's Spruce. In the region where the boundary between British Columbia and the United States crosses the Cascade Mountains, and where it was probably discovered by Lyall, *Larix Lyalli* is scattered at an elevation of about 6000 feet above the sea, over undulating grass-covered table-lands, where its associates are *Pinus albicaulis*, *Abies lasiocarpa*, and *Tsuga Pattoniana*. On Mount Stuart, where it finds its most southerly home, the trees form a straggling line along the upper margin of the forests, or occasionally small irregular groves up to 8000 feet above the sea. *C. S. Sargent.*

THE PRINCIPLES AND PRACTICE OF GRAFTING.

AMONG the methods which the gardener adopts for re-producing any given species or variety of plant, that of "grafting" holds a most important place. It is especially useful in the propagation of many trees and shrubs to which the application of other methods of propagation is found too tedious or difficult. Fruit-trees, Roses, *Rhododendrons*, *Hollies*, *Conifers*, various deciduous trees and shrubs, &c., may be multiplied in this way.

Take the concrete case of this Apple-trees. The numerous varieties of the Apple are commonly grafted, either upon the common wild Crab, or the Paradise-stock. The process, to take the simplest form of grafting, is the following: an oblique and perfectly smooth cut is made opposite a dormant bud or eye, severing thereby the upper part of the stock-plant; a similar oblique clean cut is made on the lower end of a twig of last summer's growth of the variety to be grafted, and in the same position; these two cut surfaces are then applied one to another, so that the two easily fit and coincide, leaving no portion of the cut surfaces exposed. They are then tied firmly together with bast, and finally, wax is smeared along the sides in order to prevent the entrance of either moisture or dry air. The operation should be performed either during the winter or the early spring. At these seasons of the year the plant is practically in a dormant state, that is to say, no growth is taking place, for no sap is as yet passing actively through the tissues, and the assimilation of food has ceased.

STRUCTURE OF THE WOOD.

It is here necessary to describe the structure of the stem of the Apple, in order to make clearer the following remarks. Starting from the outside, as seen in a transverse section of the stem, there is the bark, consisting of a small quantity of dead corky-tissue. Next within this is the cortex, consisting largely of living green cells called parenchyma, which have the same function as the green cells of the leaf, but the cortex, in the older condition of the stem, becomes entirely replaced by cork. The tissue succeeding this is the bast or phloem, containing elongated narrow cells called "sieve-tubes," which are of great importance as the conductors of the elaborated sap coming from the leaves, and of very small and short "companion-cells," with dense protoplasmic contents intimately attached to the sieve-tubes laterally. Besides these are other larger parenchyma cells scattered amongst the sieve-tubes, and also the cells of the medullary rays, containing living contents and forming bands running in a radial direction from the pith to the cortex. But the tissue which occupies the greatest portion of the diameter of the stem is the wood, the most conspicuous and important elements of which are the vessels, for they are the chief agents in the conduction of the water through the stem.

With the exception of the youngest elements at the outer periphery of the wood, they are quite dead and lignified, being merely passive conductors of the sap; their walls, with the exception of the

innermost spiral vessels, are studded with numerous bordered pits. The other dead elements of the wood are the fibres, which are greatly elongated, thick-walled woody elements with small pits in their lateral walls, and very tapering ends. But there may also be present another kind of fibre, called the fibrous cell, possessing living contents, thicker walls, and fewer pits; these fibres, of whichever kind, are the principal strengthening elements of the wood. Numerous living, thin-walled parenchyma cells, with protoplasmic contents, are found scattered in the wood, usually in immediate connection with the vessels, in

with conspicuous protoplasmic contents. The centre of the stem is occupied by the pith, consisting of short parenchyma-shaped cells with thin walls; many of these cells are living, and contain protoplasmic contents. Others may be dead, and may then be slightly woody in texture, and possibly take some part in the conduction of the sap.

Continuity of Protoplasm.—I may here mention an important fact in the minute structure of the stem; all the living cells, in whatever part of the stem they may occur, are in intimate communication

and as little difficulty as possible to the plant in bringing about the union of the two surfaces of stem. As soon as, under the genial warmth of the spring sun and moisture, the sap gently begins to stir both in the stock plant and the graft, both of these will straightway begin the work of healing the fearful wound which has been made in their respective stems. The living parenchyma cells of the cortex, bast, cambium, wood, and pith, on either side of the wound will begin to divide up, chiefly by transverse walls, so as to bring the two surfaces of mutilated cells into intimate contact with each other; the protoplasm will probably also exert its cellulose-forming power by bridging the gaps between the broken cell-walls of the opposite surfaces; parenchymatous tissue, known as wound-callus, will be formed outside the two applied surfaces, at any point where contact of exposed tissues with the air occurs, the outermost cells of this tissue becoming corky.

When this complete union of the two surfaces of the stock and the graft respectively, by means of the direct continuity of their cell-walls, has been accomplished, is this the whole of what has to be said? What does this continuity of the walls imply? It implies also the continuity of the protoplasmic contents of the cells of the stock and the graft, by means of those minute protoplasmic threads traversing the cell-walls already described above. It is through the agency of these tiny protoplasmic channels that a real and vital union is effected between the living tissues of the stock and the graft, in just the same way as a real and vital union exists between all the living tissues of the stock or the graft, considered as separate units.

As regards the dead elements of the wood, the vessels and fibres, owing to the fact that they contain no protoplasmic contents, the union between the opposing surfaces will be a purely mechanical, and thus far less complete, one, but will no doubt suffice for the uninterrupted passage of the sap from the stock to the graft.

The protoplasm is the seat and origin of all the phenomena of plant life; it is there that the life-processes take place, of nourishment, respiration, and growth. In the protoplasm, as the centre of vitality, and the pivot on which all the complex incidents of life turn, reside the whole character and idiosyncrasies of the plant. From the fact that this vital fluid forms one continuous network through the living tissues of the plant, it follows that the plant is a single individual in the truest sense of the word; that all the tissues, and all the cells composing the tissues, have characters in common, and there is not a single cell which may be said to be discrete, and to possess an entirely independent character of its own. It is true that certain tissues are differentiated to form structures possessing functions very different from other tissues of the same plant. Yet these differences are in reality but superficial and apparent, an undercurrent of common character running through them all. The ovule may often develop as a leaf, the stamen as a petal, the petals and sepals as leaves, or the whole flower as a vegetative shoot, and in the early forms of vegetable life, stem, root, and leaf are one and the same organ. We have even several instances, familiar to every gardener, where a whole plant may develop from a leaf, as in *Begonia*, *Streptocarpus*, *Ferns*, &c. The secret of all this is that the protoplasm, which is the fundamental seat of the whole bundle of characters and peculiarities of the plant, passes freely and openly from cell to cell through the whole length of the plant from the tip of the root to the embryo enclosed in the seed.

Reciprocal Influence of Stock and Scion.—When a graft or "bud" has "taken," i.e., when it has become vitally connected to the stock, the result will be a mingling, in a greater or less degree, of the protoplasmic substance of the two, so that, on these grounds, we should expect to find an influence working, in one direction from the stock upon the graft, and in the other from the graft upon the stock. But this mutual influence, though it must exist, is, in the majority of cases, but little apparent, inasmuch as we see the grafted shoot as it unfolds its leaves, shoots, and flowers, showing characters peculiar to itself, and none of those peculiar to the stock. The influence of the stock upon the graft must therefore, in these cases, we conclude, be very slight and inappreciable. On the other hand, there are cases known where this influence is very much more pronounced, and where the characters of the stock appear very conspicuously intermingled, in different ways and in various intensities, among those of the graft; an example of this is seen in the familiar graft-hybrid, *Cytisus Adami*.

The conditioning factors, in all cases, of the in-



FIG. 136.—*LARIX LYALLI* IN THE ROCKY MOUNTAINS. (SEE P. 356.)

the conducting function of which they probably play a not insignificant part; these elements are usually quite short, and occur in vertical rows of four at the sides of the vessels. The cells of the numerous medullary rays, with their living protoplasmic contents, running radially through the wood, must be of great importance in supplying the wood, parenchyma cells, and the young developing peripheral wood, with nourishment received from the bast and cortex. Situated between the wood and the bast is the generative layer, the "cambium," which is the seat of the formation of the new layers of wood and bast formed by it to the inside and the outside respectively; it consists of slightly-elongated narrow cells,

with each other by means of their protoplasm, which, in the form of numerous extremely minute threads, passes freely through the cell-walls; in this way, throughout the plant, open channels for the passage, probably, both of food substances and of stimuli through all the living cells, exist—a recent histological discovery which must be considered as of real practical significance.

Now the reason why especial care is taken that the incisions made both on the stock and on the graft shall be perfectly smooth and even, the work of an adequately-sharpened knife, so that no sinuosities in the surfaces, and no mangling of the tissues shall occur, lies in the endeavour to cause as little strain

fluence of stock upon graft, and *vice versa*, are very occult. I will here throw out but one suggestion, viz., that in those cases, the majority, where no perceptible influence from the stock occurs in the grafted shoot, the cause may possibly be found in the fact that the protoplasmic substance of the grafted shoot is more vitalised, more active, and stronger than that of the stock, and this would naturally result from the fact that as soon as the graft begins to form its leaves and twigs, which would occur as soon as the sap began to flow, those of the stock are all carefully and cleanly stripped off; hence the food-supply for the protoplasmic substance in the stem of the latter is almost entirely cut off, which must inevitably devitalize it, and incapacitate it for any influence as the representative bearer of the characters peculiar to the stock. Its future sustenance must come chiefly from the activity of the grafted shoot. This, however, is a mere suggestion regarding a possible factor in the case. The most important causes may be more hidden and obscure.

As regards the influence of the graft on the stock, this has also, in these cases where it has had an opportunity of manifesting itself, been observed. But in most cases no such opportunity is afforded, for the stock, as soon as the graft commences growth, is denuded of its leaves and shoots.

Supposing the grafting to be performed in the later spring or summer, however, when the sap is actively and rapidly passing through the tissues of the plant in great quantity, what will happen? In the first place, the redundant sap, on reaching the cut surfaces, and finding its habitually smooth course partially interrupted (however tightly the two surfaces may appear to be mutually applied), will tend to accumulate there, and swamp both the woody and the living tissues with over-abundant moisture, which would doubtless interfere considerably with their ordinary functions, causing some injury, and even death, to the cells, and certainly prevent the requisite cell-division, and the formation of the lateral wound-callus, without which the graft could not "take." In the second place, even supposing there was a chance of the graft "taking," the sap would have a tendency to push the buds of the stock below the grafted portion, so that extra labour would be required to constantly keep nipping the young wild shoots as they grew out; otherwise, if allowed to sprout, they would prevent the proper passage of the sap to the graft, which would, in consequence, rapidly become exhausted. Again, even if these wild shoots were properly suppressed, and the sap effected a thorough passage into the graft, the buds of the latter would rapidly shoot forth, and tend to draw too large a quantity of sap across the wound before it had become thoroughly healed—a state of things which would considerably interfere with that process. This rapid shooting of the buds would also tend to exhaust too early the energies of the young grafted plant—a circumstance which would injuriously affect its later growth.

A point of great importance in grafting is the selection of the proper kind of grafts. These should always be taken from last year's shoots, and not from older ones of the previous year, for the younger the shoots the greater amount of actively-growing tissue do they contain, and consequently the greater their vigour; and the greater the number of living cells present, the more intimate and complete will be the union of the two surfaces of the graft and the stock respectively. But the part of the stock on which the graft is inserted need not necessarily be of the same age as the latter—it is often somewhat older; but if both stock and graft contain a sufficient amount of youthful vigour, this is all that is required. *W. C. Worsdell, F.L.S.*

(To be continued.)

FORESTRY.

TREATMENT OF PLANTATIONS WITHOUT REGULAR THINNING.

IN 1895 I described the 20-feet cuts made in May, leaving 80 feet of unthinned trees between each two cuts. No large trees have died since, and none has been blown down. The Beech and Silver Firs planted in November, 1895, in the openings, have made a good start, and will soon cover the ground. My son, who has been in the Indian Forest Service for ten years, has taught for several years in the Imperial Forest School, Dehra Dum, India, and has kept up his knowledge of German forestry, spent four days with me at Tregonneth. We worked through two of the blocks into which the plantation is divided

by the reads and the 20-feet cuts, cutting down the slender trees that whipped the others from the strong north-west wind then prevailing, and removing any that were injured by squirrels, or showed signs of Larch canker, which could not certainly be diagnosed, as it was too early for the spores to appear. Where two or more trees stood 4 feet apart, one was cut down. The trees left afford as much leaf canopy as Larch will maintain, and the work improved the appearance of the plantation so much that I concluded to hire men, and give the thick parts their first thinning, except the vistas that were cut 12 feet wide in 1877, and those nearly at right angles to the above made in 1881-2-3, the last 16 feet wide. The conditions are so different in our mild and somewhat damp climate of Cornwall, without great heat in summer or cold in winter, from those prevailing in Germany that a different mode of treatment may produce better results in Cornwall than would result from German methods. Seven acres is a very small area to work on. If I had a larger area of plantation, I should treat it on what I understand to be the late Mr. Enys's principles.

With regard to the German idea of keeping a plantation close throughout with unbroken leaf canopy, so as not to allow the carbonic acid gas to accumulate near the surface of the ground, I do not perceive how the roots or trunks of the trees are to absorb it. It seems to me that the constant circulation of air by day and night, whether there is any or no wind, caused by the difference of temperature in the open spaces from that in the thick parts, is better calculated to enable the leaves of the trees to absorb carbon from the atmosphere as the air passes, and so promote the deposit of carbon under the bark, and encourage the growth of timber.

We have cut a great many railing-poles this year, the forty-first since it was planted, and they have done their work so well in killing the branches on the trees now standing that one rarely finds a branch on the Larch an inch in diameter, and they are beautiful straight poles, so the time has come to encourage them to increase in bulk and grow fast. Silver Fir and Beech seedlings are springing up freely in places since the 20 feet cuts were made.

It is intended to underplant with Beech next autumn. When that has been done it will be perfect. *H. R., Plymouth.*

THE WEEK'S WORK.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

Peach and Nectarine-trees.—The first thing to be done after the last fruit is gathered is to remove the wood which has borne fruit this season, and that which is not required for next year, and to nip the points of all side shoots back to two leaves. Endeavours should be made by means of a bit of lath, &c. and a bast tie to keep all the young shoots straight, and in their proper places. After these matters are attended to, afford the foliage with a syringe or engine, a washing, using considerable force in doing this, but not so as to tear the leaves. During the summer let red-spider be kept in check with an occasional use of the syringe applied in the afternoon; afford a thorough application of water to the roots as often as the soil shows signs of dryness, and do not omit full ventilation night and day, excepting during thunderstorms. Brown scale sometimes infests the wood and leaves of the Peach, and a good remedy against it is to syringe the trees occasionally with soap-suds made with soft-soap at the rate of 2 ozs. to one gallon of water. Peach and Nectarine-trees in pots, after the fruits are cleared off, require much the same kind of treatment as the foregoing, and water is required at the root much more frequently. If red-spider, aphids, &c., attack the trees, it is an easy matter to lay them on their sides and wash them clean with a syringe and soap-suds, taking care to wet more especially the under-sides of the leaves.

Cherry-trees, after fruiting, need similar attention to the Peach, and being apt to infestation with black aphids, fumigation or vaporisation should be resorted to. The fruit keeps in good condition on the trees for some time after it is ripe if the Cherry-house be kept dry, and it is freely ventilated. It will be necessary in country gardens to put nets over the ventilators, in order to prevent the ingress of blackbirds.

Plums.—When stoning is completed, if it be thought desirable to ripen the fruits early, the temperature of the Plum-house may rise to 90° late in

the afternoon; and an hour or two later the top ventilators may be opened a small space, and remain so all night. During the night the warmth may not exceed 65° nor go below 60°, and on dull days 70° by means of fire-heat is high enough; and with sun-heat 80° to 85°, increasing the amount of air when 70°, 75°, and 80° are indicated. Syringe the plants well when shutting-up the house if the day has been fine; and in dull weather it will suffice to merely damp the floor and the borders. After stoning, the Plum requires more water at the root than at other times, but at no time during growth should the soil lack water. Bearing-trees for late supplies should have their fruits thinned for the last time; completing the work before stoning commences. As often as may be required pinch the points of the lateral shoots, this having the effect of forming fruit-spikes out of what are merely wood growths; and endeavour to secure uniformity in the heads, filling bare spaces, &c. Make but little use of artificial heat, only warming the hot-water pipes on wet days and cool nights, so as to be enabled to maintain buoyant air in the house, and a somewhat free admission of fresh air by night and by day, more or less in accordance with the state of the weather. Syringe the trees in the afternoon if the day has been warm and fine.

HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Tomatoes should be planted as soon as they are hardened off in a proper manner, that is, not hurriedly, and this is more particularly necessary with plants which may have been grown in shady houses. I do not recommend the use of manures when setting out Tomato plants, as it induces a strong growth in a showy summer, and is seldom productive of good results. After a crop of fruits has set, manure may be advantageously applied in some concentrated form, and it will materially increase the weight of the crop. On Tomato plants grown out-of-doors, lateral shoots should be suppressed, and the main-stem only allowed to develop, keeping it fastened to the wall or other support as it grows. In warm summers the Tomato does well trained to 5-foot stakes in the open quarters, but only when the plants are strong when put out, and the position is a warm one. Certain varieties found in the seed-lists are better adapted to this mode of culture than others, and it is advisable to select such varieties rather than plant indiscriminately. The small-fruited varieties are extremely prolific when planted outside, and they ripen very well provided the season is moderately warm.

The Apricot.—The fruits should now be finally thinned, the larger varieties such as the Peach and Moor Park being left at an average distance of 9 inches apart, and the smaller at 6 inches. If the fruits are not disposed equally over the tree, they may be left more thickly where they are most abundant, but not closer together than 3 inches for the smaller fruited varieties, and 6 inches for the larger ones. The fruit when approaching ripeness are easily injured, and if they are crowded against each other decay is soon set up. If an Apricot-tree be over-cropped in one year, it generally fails to bear much fruit the next year; the gardener should therefore endeavour to avoid this misfortune by a timely thinning of the fruits. Woodlice sometimes commit much havoc on the fruit when it begins to change colour, and every precaution should be taken to avoid this by trapping them in bits of Bean-stalk and Bamboo—in fact, little tubes of any kind of material stuck about behind the branches; and the old familiar flower-pot trap, stuffed with damp hay, should be laid in numbers under the trees. Whatever is set as a trap should be examined every day, and the creatures caught destroyed. This season the growth of the Apricot has been slow, and summer-pruning will have to be deferred until the wood is in a more advanced stage. Trees which are heavily cropped may be assisted with weak liquid-manure afforded occasionally, and a mulching of farmyard manure over the roots if dry weather should set in.

Grafted Fruit-trees.—The clay round the grafts should be examined, and all cracks closed with a thickish mixture of clay and water, applying it with a stiff brush, it being a matter of importance to keep air and moisture from the point of union till the latter is perfected, the apex of the clay mass being very carefully closed round the scion. Last year's grafts and buds will in most cases need fastening to the snag that was left on the stocks in the latter case, and to a stick thrust-down close to the stock in the former.

Unless a stock is very weak, all of the emitted shoots may be rubbed off; if weak, then retain a few, which should be allowed to grow 2 inches, and then be pinched at the point, rubbing off all others. The shoots coming from the scion should have their points nipped off early, excepting those which are to be the main branches, which must be allowed to go away unrestricted.

Pears.—Many fruits are dropping at Belvoir, owing to the trees having been infested at the flowering time with a small fly, *Diplosa pirivora*, whose eggs are deposited in the blossoms, and such early varieties as White Doyenné and Windsor are suffering badly. The fly does not, however, confine its attentions to any particular variety. Maggots about one-eighth of an inch long soon hatch out, and begin at once to feed on the inside of the young fruit, causing decay, and the fruit soon drops. These dropped fruits should be very carefully collected without delay, and burnt forthwith. It is very likely that doing this every year would in course of time greatly diminish the numbers of the pest.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorking.

Dendrobiums.—*D. Bensoniæ* and its variety *xanthinum*, now passing out of flower, should be given fresh compost, if needful, as soon as the young breaks are a few inches high and they are emitting roots. The same may be said also of *D. Parishii*, *D. P. polyphebioides*, *D. P. Emerici*, and *D. P. albens*. These species require but a very thin layer of compost and sphagnum-moss alone, or peat and moss may be used. Suspend the plants during growth close up to the roof-glass in the hottest house, and keep them well supplied with moisture. *D. Bensoniæ* is reputed to "deteriorate" after a few seasons, but at Burford we have a strong plant which has been here for some years, and it makes larger pseudo-bulbs and blooms freely each year. Afford the plant a hot and moist atmosphere during growth, and when this is finished expose to full sunshine and withhold water. Our plant has not received a drop of water at the root since last September, and the bulbs are still plump and fresh. It now bears about three dozen flowers of pearly whiteness, on the last made pseudo-bulb. Instead of resting the base of the plant upon the surface of the compost when repotting it, keep the soil on a level with the rim of the pot or basket, and raise the leading pseudo-bulbs considerably above it. The base of the young growth upon our plant is quite $\frac{1}{2}$ inch above the compost. Keep the potting material rather dry until the new roots have obtained a firm hold, then water may be afforded in small quantities and gradually increased. During the resting period the temperature of the house may fluctuate between 60° and 70°, but now that growth has commenced it should be given the same temperature as that advised for *D. Phalenopsis* in a previous calendar. *Dendrobium Falconeri giganteum* is a species similar in some respects to the preceding; its young breaks commencing to push up as the flowers expand. Repot it in the same manner as *D. Bensoniæ*, but do not grow it in a very hot house, a warm and moist position in the Cattleya-house suiting it better. *D. infundibulum* and *D. Jamesianum* may also be repotted as soon as growth recommences. Place the plants at the warm end of the Odontoglossum-house, and afford abundance of water throughout the growing season.

Odontoglossum citrosimum.—Re-basket plants of this species as they pass out of bloom, and suspend them from the roof; and as the plant makes but few roots, use only a small receptacle. Pot very firmly with peat and sphagnum-moss; as by making the compost firm, the pseudo-bulbs retain their plumpness longer during rest. Suspend the plant close to the roof of the Cattleya or Mexican-house, and if it can be placed near to a top ventilator, all the better. For a week or two after repotting, keep the compost merely moist, but after that time gradually increase the supply, and when in full growth afford water copiously.

Various Species.—*Renanthera (Vanda) Lowii*, now growing freely, may be placed with such species as *Angraecum sesquipedale*, *Vanda Sanderiana*, &c. The rare *R. Imechootiana* appears to thrive best when grown in small pans, potted only in crocks, with a thin surfacing of sphagnum-moss; and a place near to the roof on the lightest side of the Cattleya-house is the best position for it. A similar position is suitable for such plants as *Chysis bracteosa*, *C. aurea*, *C. Limninghei*, *C. Sedeni*, and *C. Chelsoni*; these

plants, being now in full growth, should be afforded copious applications of water. Towards the autumn they should be removed to the sunny side of the East Indian-house, to complete and mature their growth and pseudo-bulbs. The following plants—*Oncidium Marshallianum*, *O. concolor*, *O. olivaceum*, *Lawrenceanum*, *O. superbiens*, *O. dichromum*, *O. undulatum*, *Epidendrum vitellinum majus*, *Miltonia vexillaria*, and the numerous varieties of *Odontoglossum* which are now in bloom, should be relieved of their flower-spikes as soon as possible; over-flowering being frequently the cause of the deterioration of so many of these beautiful species.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Dahlias.—Put out the plants at once, there being little danger now of frost occurring. The Dahlia requires a deeply-dug and richly-manured soil, but this should have been prepared previously. Place a stout stake to each plant at the time of planting, and secure the plant loosely to this by tying. As slugs and earwigs are very destructive to Dahlias, it is well to place a ring of soot or lime at a little distance from the stem of each plant. This precaution should be renewed every few days, or oftener in case of rain. The best and simplest method of entrapping earwigs is to place a small pot in an inverted position with a little hay in the bottom of it, on the top of each stake. Examine these every morning, and destroy as many earwigs as may be found. If the soil is dry at the time of planting, a good watering will be necessary when the work is done, and the roots of all the plants should be moderately moist before being put in. If the plants are to be cultivated for furnishing exhibition blooms only, all the weaker shoots should be removed, and the number of flower-buds reduced. Frequent application of liquid-manure will be helpful as the season advances. Plants intended for garden decoration should be placed 3 feet apart each way, and the removal of fewer shoots will be necessary. For cut-flower purposes, the Cactus and Pompon varieties are best; the single-flowered varieties have lost favour during late years.

Sub-tropical Plants.—*Eucalyptuses*, *Ricinus*, *Nicotianas*, and other similar habited species, should be planted in a sheltered site, or the damage wrought by rough winds will be great.

General Work.—*Begonias*, whether tuberous or fibrous rooted, should be planted at once. If strong sunshine is prevalent at time of planting, it will be advisable to shade the plants for a few days with branches. A covering of Coconut-fibre over the soil is an advantage, as in preventing the flowers and foliage becoming splashed during showery weather. Bedding of every description should be completed without delay.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Crotons.—Small plants, whilst they are now making growth, should be repotted before they become pot-bound. Let the plants be grown fully exposed to the sun, not placing them close together, but allowing ample space to each, so as to enable its foliage to develop fully, and use the syringe freely every day, twice, or oftener; and close the house early in the afternoon, the Croton delighting in high warmth, and much moisture in the air. The heads of such of the plants as have grown too tall may be bound round with moss, as previously advised, into which they will soon put forth roots, and may then be cut off and potted. The well-coloured side-shoots may also be taken off, inserted in thumb-pots, and plunged in a close, moist propagating-frame, and shaded from the sun. Plants which are growing freely may be afforded manure-water and clear soot-water occasionally.

Acalyphas.—Few kinds of stove plants are more usefully decorative than these, for they may be kept in a living room for a considerable time without injury if ordinary care be afforded. To ensure strong, brightly-coloured plants, it is essential to grow them in brick heat. In the early stages they are susceptible of injury by scorching, if fully exposed to the sun; it is, therefore, necessary to gradually expose them to full sunlight. Any plants that become leggy may have the tops cut off, inserted in small pots of light soil, placing these in a strong moist heat. If the old plants are cut-back and kept somewhat drier at the roots for a time, growth will be renewed, and they will in time make presentable plants.

Caladiums.—Advanced plants should be carefully hardened off before placing them in the cool conservatory, which they will help to make gay for some weeks. Those plants which are not very forward should be kept in a close, warm, moist house, and when growing freely weak manures may be afforded them.

Allamandas.—Large plants growing in pots will now be showing flower, and to have these of fine size plenty of readily available plant-food is necessary. It is good practice to place a thick layer of manure on the surface of the soil, and to afford weak liquid-manure every time when water at the root is needed. Repot young *Allamanda* plants which may be allowed to increase in size, and let them grow with their foliage fully exposed to the sun; and afford them a compost consisting of good fibrous loam six-sevenths, decayed manure one-seventh, and plenty of sharp sand. Shade will only be needed for a few hours during the hottest part of the day, after a large number of the flowers are expanded. Plants that have been trained round four or five stakes, and are sufficiently hardened off, may be removed to the cool conservatory, standing the plants where cold draughts will not reach them. With careful treatment, such plants will continue to produce flowers for a long time.

THE KITCHEN GARDEN.

By J. W. MCHATTIE, Gardener, Strathfieldsaye, Hants.

Cabbage and Coleworts.—At about this date according to the lateness or forwardness of the locality, more seeds of Cabbage and Coleworts may be sown for the purpose of affording plants for setting out on land which will have been cleared of Potatoes and Turnips, &c. Advantage should be taken of showery weather to plant Cabbages, being careful to make the soil firm about them, and to mould up growing plants. Let the Dutch-hoe be freely used among the plants set out during April and May, and remove the remains of the crops of spring Cabbages. I always pull up Cauliflowers and Cabbages, when taking the heads for consumption, both being exhausting crops; and to leave the roots in the soil is to make the loss of plant food the greater.

Asparagus.—It will now be a question with many when to stop the removal of shoots from the plants. The exact time will depend on the part of the country; in the south, the middle of the present month is late enough, and certainly no more cutting should be done if the roots are going to be forced, as the plants must have time to mature their growth. As a help to this end, first handweed the beds, then afford a dressing of agricultural salt and bone-meal during showery weather, and should a spell of hot and dry weather set in, apply water and well diluted farmyard liquid-manure frequently. It is advisable when the stems reach 4 feet in height, to afford them support against the wind; and should the plants be arranged in solitary rows, stout stakes should be driven into the ground 10 to 12 feet apart, and tarred twine stretched from end to end of the rows and secured to the stakes, and the Asparagus stems securely tied to the twine with common bast. Another method is to place Pea-sticks among the plants in the same manner as is practised with Peas.

Endive.—Endive is a good substitute for Lettuce when the latter becomes scarce in the autumn, and at this date seeds of the curled and Batavian varieties should be sown thickly in drills 1 inch deep and 9 inches apart, on well manured land. The plants should be thinned out according to variety, from 6 to 9 inches apart in the rows, the thinnings being transplanted into beds of rich soil. Endive is a plant which should receive plenty of water in dry weather, or it will soon bolt, more especially the early sowings.

Herbs.—All seedlings raised in heat, if properly hardened off, viz., pot Marjoram, Sweet Basil, Thyme, and Sage, should now be planted in the herb border. Keep Spear Mint and Tarragon, Chives and Sorrel, in a fit state for use by regularly cutting the longest shoots and oldest leaves, as the case may be, for kitchen use. The herbs which were sown in the open border will need to be thinned to 6 to 8 inches apart, and the border kept quite clean and free from weeds. Let the labels attached to each kind be renewed, and the names thereon made legible, in order to prevent mistakes when cutting herbs for drying or for daily use.

Salading.—Make sure of having a constant supply by sowing Radishes, and Mustard and Cress, at short intervals of time; seeds of Lettuce being sown during this month.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, JUNE 11	Royal Botanic Society, General Meeting.
TUESDAY, JUNE 14	Royal Horticultural Society's Committee. Eastbourne Horticultural Society, Meeting.
WEDNESDAY, JUNE 15	Yorkshire Horticultural Fête (three days).
THURSDAY, JUNE 16	Linnean Society, Meeting. Rose Show at Colchester and Isle of Wight (Crisbrooke).
FRIDAY, JUNE 17	Royal Botanic Society (Lecture).

SALES.

TUESDAY, JUNE 14	Orchids, by order of Mr. William Bolton, at Protheroe & Morris' Rooms.
WEDNESDAY, JUNE 15	Orchids at 39, Northend, Croydon, by Protheroe & Morris.
FRIDAY, JUNE 17	Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three years, at Chiswick.—60° 7°.

ACTUAL TEMPERATURES:—

LONDON.—June 8 (6 P.M.): Max., 69°; Min., 56°.

PROVINCES.—June 8 (6 P.M.): Max., 63°, S. E. England; Min., 51°, Shetlands.

Dull, warm, close; some rain.

Damping-off of Seedlings and Cuttings. This troublesome and often disastrous occurrence may be averted in great measure by affording the seed or cutting-pots and pans as much ventilation as is consistent with safety. In the case of cuttings liable to damp off, besides wiping the bell-glasses or hand-lights dry every day, if say, an 8-inch cutting-pan, or a small 32-flower-pot be employed, a large 60-pot be sunk in it, top downwards and resting on the crocks, and in the case of a 48-sized pot a small 60, or a long Tom of about the same diameter—that is, a pot one-a-half times as deep as it is broad, be placed in the middle, as in the former case, much loss will be averted. These sunken pots serve two purposes, they preserve a space free from plants and cuttings, thus aerating the centre of the mass where damping always begins and is greatest; and they tend also to the same end by accelerating the drainage of the contents of the pan or pot, just where the moisture is apt to be greatest; and lastly, in the case of cuttings, early rooting is favoured owing to the increased degree of warmth imparted to the soil, and the more suitable degree of moisture preserved in it where the basal part of each cutting rests. One more matter often overlooked now-a-days: a fine-speuted watering-can should be in more regular use among seedlings and cuttings, and especially in propagating-frames, resting on hot-beds of stable-manure and leaves, than the fine-rose watering-can. The spout should be slightly bent downwards, and have an orifice not larger than a crow-quill, with which it is possible to afford water to cuttings and seeds without wetting the leaves

or stems. Where a small pot is sunk in a pot or pan it is usually sufficient for all needs to pour water gently round the outside of this and the inner rim of the pot or pan.

In the case of very small seeds, and of seedlings that resent overhead watering, and where dipping in a vessel of water is apt to cause water-logging of the soil, the seed-pans should be placed in larger ones, and the space between the sides and bottom filled with fine sand. This sand, if maintained in a moist state, and the pan be covered with a sheet of glass, or what is better till germination has taken place, a flat roofing-tile (not a slate, as moisture condenses on this and drops on the soil sometimes detrimentally), replacing it with a piece of glass when the plants show, will render unnecessary the application of water after the first one till the seeds have germinated, and probably for a week or two later. It is an excellent procedure for Chinese Primulas, Cinerarias, Calceolarias, Begonias, Lobelias, Nicotianas, &c. *Lisianthus Russellianus* is a pretty blue-flowered *Gentianad*, but seldom seen now, has extremely minute seeds which, if sown in sandy-peat and leaf-mould, and kept moist and cool, germinate inside of four weeks. It is a subject which, when it comes above ground, should be often wetted with a fine rose-can. The seed-pan may, however, be placed inside a larger one, for the reasons stated, and because affording water to the soil is very apt to carry the seeds over the edge of the pan, or at the least to displace them. It is a plant that germinates with more certainty if a mild bottom-heat be applied; and mild top-heat suits it in the early stages of growth.

The Crystal Palace Fruit Show

The autumn fruit show at the Crystal Palace under the auspices of the Royal Horticultural Society, is always so fine an exhibition of British-grown fruits, more particularly of hardy varieties, and its influence so appreciable in the direction of establishing a high standard of quality in Apples and Pears, that we cordially welcome the schedule for the current year, now to hand.

In accordance with previous announcements, the coming show will be opened on September 29, and will continue during the two following days. We do not observe any reference in the schedule to a conference in connection with the show; it would appear, therefore, that this interesting and important feature of previous exhibitions is to be omitted from the programme. The question of hardy fruit cultivation in this country, it may be urged, has been repeatedly discussed in its relation to site, soil, methods of cultivation, selection of varieties—in all its aspects, indeed, that there may be little new to say upon the matter. Market salesmen have also spoken in great detail of their experience in fruit distribution, with a view to persuading growers for market to so gather, grade, and pack their produce that it may realise the best possible prices, and successfully compete with imported fruits which are placed before consumers in the most tempting fashion. Still, we suppose that until all this precept has been reduced to practice, it remains for those desirous of furthering the interests of fruit-culture to keep pegging away, hammering truths, that most of us already well know, into the minds of the men actually engaged in fruit-cultivation, but whose ears are unwilling to hear advice that may call for the abandonment of methods inherited from their grand-

fathers. The preserving of fruits by evaporation has been recommended as an antidote to the ruinous prices fruit is sometimes sold for in time of a glut. The simple principles of the method are well understood, at any rate by a number of cultivators; but, except in a very limited degree, they remain unapplied. This very regrettable circumstance is attributed to the expensive character of the method, and it is said that before the necessary apparatuses that have been well and successfully tested at Chiswick can be obtained, co-operation is needed among the cultivators. A listlessness, combined with a distaste to co-operation, is thus permitted to stand in the way of an admitted help to the industry. Some day, perhaps, we may see these evaporators in the hands of cultivators and owners, who will lease them to the fruit-farmers, similarly to the practice common in the case of threshing-machines. In any case, it is essential that the system be made part of the routine work upon fruit farms, and if this was done, the further planting of Plums and Pears could be conscientiously recommended. At present, in a season of plenty, the former fruit scarcely pays for the gathering.

In turning to the competitive classes in the schedule, we find that division 4, embracing ten classes, has been allotted to counties or groups of counties. Thus, the two competitions in the "Special District County" classes are for six dishes of Apples, distinct, four of cooking varieties, and two dessert; and for six dishes of distinct Pears. These exhibits are to be entered in one of the ten classes, according to the counties from whence the fruit will come. In one of the classes Scots growers will compete amongst themselves; in another, cultivators in the Emerald Isle may exhibit. The six northern counties are grouped with the Isle of Man; Worcestershire and Hereford are placed with the more favourable Welsh counties, such as Glamorgan, Carmarthen, and Pembroke; whilst another class provides for growers in the rest of the Welsh counties. Class 70 is open to growers in Lincoln, Northampton, Warwick, Leicester, Notts, Derby, Staffs, Shropshire, and Cheshire. The fruit growers in the counties of Essex, Suffolk, Norfolk, Cambridge, Hunts, and Rutland, will compete with each other, as will also those in Wilts, Gloucester, Oxford, Bucks, Berks, Beds, Herts, and Middlesex. The importance of Kent as a fruit producing county is expressed by the wording of the class 66, "Open only to Kent growers;" and in the next class are grouped together some adjoining counties, including Surrey, Sussex, Hants, Dorset, Somerset, Devon, and Cornwall. The reason for this grouping of counties is obvious. The opportunities for northern fruit growers, or even cultivators much further south, to win prizes in competition with growers from more favoured localities are next to none.

What chance, for instance, is there of a Staffordshire, Shropshire, or Yorkshire cultivator winning a 1st prize from growers who live in the vicinity of Maidstone? These latter exhibitors themselves are so fully aware of the great advantages they possess over others in less favoured parts, that we are sure they will be amongst the first to admit the justice of the new arrangement. It is important of course to encourage exhibits of fruit from every county, and to this end, it is obvious that growers in each must be given the opportunity to compete for the prizes under something like equal conditions.

The importance of packing in the case of fruits sent to market, is acknowledged by the provision of additional classes for market-growers, there being now twenty devoted to the illustration of the best methods of packing various kinds of fruits.

There has been conspicuous disinclination among nurserymen, as a whole, to enter the competitive classes open solely to them. This would be natural if a firm might show a collection of fruits in the hope of an award equal to

be awarded a prize of greater value than a Silver Medal, however large or meritorious the fruits may be. Gold, or even Silver-gilt Medals, may only be won by boldly entering the ranks of those who compete. But, in this case again, it would seem more fair if the nurserymen were also to be grouped together in district competitions.

Altogether there is evidence that very considerable time and care have been bestowed upon the compilation of this schedule, and we

always white from the three lower segments down the tube, and purple from the two upper segments, the throat covered with small spots, and the white segments edged with violet. The flowers are very numerous, and thus make a very attractive display, though only about seven-eighths of an inch long. The leaves are round, slightly heart-shaped, and of dark green colour, with purplish veins, reminding one of *Nagelia zebrina* in miniature; they are borne on very slender stems, which proceed from a tiny tuber. Flowers are produced over a long season, but are most numerous and effective in spring. It is a native of Brazil, and was introduced by Messrs. Jas. Veitch & Sons about thirty-seven years ago. Though very charming in any stove, it is scarcely now a commercial plant, but finds refuge at Kew and Cambridge, the accompanying illustration having been prepared in the latter garden. Its culture is not difficult, but requires some care. If treated much as a *Gloxinia* it is perfectly happy, but several should be grown in a pan. It is increased by separating and striking the shoots. R. I. Lynch, Cambridge Botanic Gardens.

SIR WILLIAM AND SIR JOSEPH HOOKER.—In acknowledging the presentation by the Linnean Society of a special medal as previously reported by us, Sir JOSEPH HOOKER thus gracefully alluded to the part that his father had taken in launching him in his career and supporting him in it:—"It remains, Sir, to thank you cordially for coupling my father's name with my own in this award; but for which, indeed, I could not have accepted it without a protest. I inherited from him my love of knowledge for its own sake, but this would have availed me little were it not for the guiding hand of one who had himself attained scientific eminence; who, by example, precept and encouragement, kept me to the paths which I should follow; launched me in the fields of exploration and research, liberally aided me during his lifetime, and paved for me the way to the position he so long held at Kew with so great credit to himself, and benefit especially to our Indian and Colonial possessions."

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Fruit and Floral Committee will be held on Tuesday next, June 14, in the Drill Hall, James Street, Westminster. Tuesday's meeting will be the first at which the Sherwood Silver Cup, value £10 10s., will be competed for. This award is for the encouragement of effective arrangements of annual and biennial flowering plants. A conspicuous exhibit in connection with the meeting will be a large group of Malmaison Carnations from Dover House gardens. These will probably occupy 400 square feet. A lecture on "Hybrid Orchids" will be given by Mr. JAMES O'BRIEN, V.M.H., at 3 o'clock.

THE LOSS OF PLANTS AT THE TEMPLE SHOW.—To our great humiliation and regret, we are unable to report any intelligence concerning the missing plants. We trust the Society will take some public means of expressing the sympathy that is universally felt for Mr. JULES HYE, and that it will take steps to prevent any such disaster in future. A letter from a correspondent in another column shows one way in which such disasters may be obviated.

THE NATIONAL HORTICULTURAL SOCIETY OF FRANCE arranged a ball which took place on the 21st ult., and which is described as a great success. The profits are to be devoted to the fund for the relief of necessitous gardeners. The "assistance" worked hard, for we are told they did not separate till 5 in the morning.

LINNEAN SOCIETY.—On the occasion of the evening meeting to be held on Thursday, June 16, at 8 P.M., the following papers will be read:—I. "Observations on the Seasonal Variations of Elevation in a Branch of Horse-Chestnut Tree," by Mr. MILLER CHRISTY, F.L.S.; II. "On Pantopoda, Collected by Mr. W. S. BRUCE in the Neighbourhood of Franz-Josef-Land," by Mr. G. H. CARPENTER, B.Sc.; III. "Morphological Relationships of the Actiniaria and Madreporaria," by Mr. J. E. DUERDEN, A.R.C., Sc.; IV. "On Some Fossil Lepidoptera," by Dr. C. J. FORSYTH MAJOR, C.M.Z.S.



FIG. 137.—*SINNINGIA CONCINNA*.

the 1st prize in the competitive classes without incurring the risk of being placed 2nd to any other firm. Two years ago when commenting upon the exhibition which had just been held, we said that the unwillingness of nurserymen to enter the competitive classes might involve, at a future time, the making of arrangements that would offer to the trade greater inducements to do so.

The Council continue to try to make their trade competitive classes more popular by withholding the highest prizes from non-competitive exhibits. These latter will not

trust that fruit-growers from every county in England, from Wales, Scotland and Ireland, will strive to make the forthcoming show the most representative yet held at the Palace.

SINNINGIA CONCINNA (STENOASTRA CONCINNA).—The accompanying illustration (fig. 137), from the pencil of Mr. F. W. BURBIDGE, M.A., V.M.H., represents one of the most charming of Gesnerads. It is an immediate relative of the garden *Gloxinia*, but contrasts strongly with it in being many times smaller, and also in its much quieter coloration. In this it does not vary, being

A WINTER HORTICULTURAL EXHIBITION IN BERLIN IN 1900.—As we learn from German journals, it is the intention of the Prussian Horticultural Society to hold a winter horticultural exhibition early in 1900; and the general secretary of the society has already approached the Minister of Education on the project. It is likely to meet with the heartiest support in Berlin.

ROSE SHOW FIXTURES IN 1898.—Mr. ED. MAWLEY, Rosebank, Berkhamsted, obliges us with the following fixtures, since the last list published in these columns on May 14:—June 29 (Wednesday), Brockham; July 5 (Tuesday), Diss; July 13 (Wednesday), Bedford; July 14 (Thursday), Reading.

MALFORMED CATTLEYA.—Messrs. HUGH LOW & Co., of Bush Hill Nursery, Enfield, send us flowers of *Cattleya Mendeli*, in which the perianth is reduced to two sepals and two petals without a lip. The occurrence is not rare in Orchids; but what is unusual is, that the column retains its curved direction. Commonly in such flowers it is straight.

RELATIVE MERIT OF BULBS.—The following is the result of the *plebiscite* lately instituted by the Dutch Bulb Society. Coloured plates of the pre-miated varieties will be given in the *Florilegium Haarlemense*.

FIRST-CLASS BULB HYACINTHS.
Red and Rose-coloured.

	Votes.		Votes.
Moreno ...	268	Fabiola, with ...	108
Lord Macaulay...	225	Gertrude ...	107
Charles Dickens ...	187	Sir John Foxburgh with	
General Félissier ...	172	only 1 vote!	
Garibaldi ...	164		

White-coloured (Single and Double).

	Votes.		Votes.
L'Innocence, with ...	283	Mina, with ...	211
Mlle. v. d. Hoop ...	278	Blanchard ...	102
Bar. van Tuyll...	215		

Blue (Single and Double).

	Votes.		Votes.
Queen of the Blues, with 183		Grand Lilas, with ...	101
Czar Peter ...	150	Captain Boyton ...	99
Blondin ...	113	Baron van Tuyll ...	99
Leonidas ...	108	Lord Melville ...	89

Yellow (Single and Double).

	Votes.		Votes.
King of the Yellows, ...		McMahon, with ...	68
with ...	191	Keenig van Holland ...	38
Obelisque ...	89		

Purple (Single and Double).

	Votes.		Votes.
Sir William Mansfield, ...		Lord Mayo, with ...	50
with ...	129	Lord Balfour ...	49
L'Unique ...	52		

Tulips (Single Early).

	Votes.		Votes.
Prins van Vostemyte, ...		Le Matelas, with ...	218
with ...	322	Gouden Standaard ...	211
Silveren Standaard ...	304	Witte Falk ...	100
Mor Trésor ...	288	Jagt van Rotterdam ...	199
King of the Yellows ...	273	Duc van Tholl (rose) ...	179
Coeur Cardinal ...	272	Maas ...	171
La Belle Alliance ...		Van der Neer ...	171
(Waterloo) ...	257	Duc van Tholl (white) ...	169
Rembrandt ...	235	... (crimson) ...	166
Nelly ...	234	Koningin der Neder-	
Duc van Tholl (yellow) ...	223	landen ...	160
Brind van Haarlem ...	222	Pottbakker (yellow) ...	156

Tulips (Double).

	Votes.		Votes.
Couronne d'Or, with ...	340	Rex rubrorum (varie-	
Titian ...	254	gated), with ...	141
Gloria Solis ...	231	Fluweelen Mantel ...	139
Couronne des Roses ...	196	Geleroos ...	135
Rubra maxima ...	191	Leonardo da Vinci ...	134
Blanche Hâtive ...	175	Lord Beaconsfield ...	124
El Toreador ...	160	Le Blason ...	113
Willem III. ...	156	Lucretia ...	113
Mariage de ma Fille ...	155	Parmesiano ...	104

Tulips (Various).

	Votes.		Votes.
Parkiet Perfecta, with ...	140	Gouden Kroon (single,	
„ Adral. van Con-		late), with ...	97
stantinopel ...	117	Picoté ...	85
		Bouton d'Or ...	80

Narcissus.

	Votes.		Votes.
Golden Spur, with ...	126	Her Majesty, with ...	36
Poeticus ornatus ...	85	Bicolor Victoria ...	35
Henry Irving ...	74	Trompet major ...	30
Albus pl. odoratus ...	44	Poeticus ...	29
Bicolor grandis ...	38	Barri conspicuus ...	28
Van Sion (double) ...	37		

WORK AT THE ESSEX TECHNICAL LABORATORIES.—The *Journal of the Essex Technical Laboratories* for August-December, 1897, contains:—Notes and Reports on Experiments, 1896-7; Study for Horticultural Students (illustrated), a tuberous-rooted Begonia; Report of the Horticultural Students'

Society; Report and Experiments in connection with the Salt-water Flood, November, 1897; Dairy Bacteriology, Result of Examinations of the County School of Horticulture and Study of Fungi. From the general notes we glean a very good idea of the type of work undertaken at the laboratories. The subjects dealt with include agriculture in various branches, and considerable attention also is devoted to the scientific side of gardening. Thus, there is an autumn school of horticulture which "met during the month of November. It was mainly attended by young gardeners who held horticultural scholarships granted by the East Suffolk Technical Instruction Committee. Considerable attention was devoted to propagation of plants and to fruit culture." The Horticultural Students' Society (in connection with the Essex County School of Horticulture), is an association "to promote home-study, and to encourage out-of-door observations of matters and things bearing upon horticulture. Each member undertakes to prepare, once a year, an original paper upon some gardening subject, such paper to be the result of actual study and experience on the part of the writer. These essays are circulated amongst the members, and notes and criticisms invited." A sample paper printed in this journal is on "The culture of the tuberous Begonia for bedding purposes," by Mr. FRANK ISTEED, who stood first in the (Essex) list of candidates at the Royal Horticultural Society examination in 1896. The advantages of the Students' Society are, of course, the incentive to continue work begun in the schools, and the keeping up of intercourse between present and past students all over the country. It is interesting to note in what special branches of horticulture instruction is most sought. "A number of lecture courses on horticultural subjects has been given during the session, and good attendances have in most cases been secured. A pleasing feature of the work is the interest found in old centres when revisited. Fruit-culture is still the principal subject in demand throughout the county, and pruning invariably proves an acceptable part of the instruction. The subject that perhaps stands second in popularity is the propagation of plants, and considering its importance, it is no wonder that it claims the attention of so many lovers of plants and owners of gardens."

FLORA OF TIBET.—Various collections have been received at Kew, according to the *Kew Bulletin*, the largest made by H. E. HOBSON, Esq., stationed on the eastern frontier of Sikkim, and botanically in the humid Himalayan district. It may be expected that numerous novelties will be found in this collection.

COFFEA STENOPHYLLA.—The *Kew Bulletin* prints a letter from Mr. HART, of Trinidad, in which the merits of this species, a native of Sierra Leone are pointed out. The berries are dark purple, not red, and the flavour of the prepared seed is excellent. Steps have been taken to introduce it into other West Indian islands.

DUTCH HORTICULTURAL AND BOTANICAL SOCIETY.—On the occasion of the meetings of March 9, April 20, and May 11, 1898, of the Floral Committee of this Society, First-class Certificates were awarded to Messrs. V. Schertzer & Sons of Haarlem, for *Primula acaulis cœrulea* (March 9); to the Botanical Garden of Utrecht for *Cineraria Lynchii* (May 11); to Mr. Baron van Boetzelaer of Maartensdijk, for *Eulophiella Elisabethæ* (May 11); and to Mr. A. D. den Olden of Leiden, for *Plantago lanceolata* fol. varieg. (May 11). A Certificate of Merit was granted to Mr. Baron van Boetzelaer for *Stanropsis (Vanda) gigantea* (April 20).

CARDIFF AND COUNTY HORTICULTURAL.—The annual exhibition of this Society will be held in the Sophia Gardens, Cardiff, on July 20 and 21, being a date nearly three weeks earlier than usual. A Veitch Memorial Medal will accompany the 1st prize in the gardeners' class for miscellaneous plants. In a similar class in the open division, encouraging prizes are offered, and for stove and greenhouse specimen plants, Roses, &c.

WHAT IS EXPECTED OF A GARDENER.—The duties of a "single-handed" gardener are often multifarious enough, but the following list of expected requirements lately received by one of our correspondents in reply to his advertisement for a situation says much for the hopeful disposition of the would-be employer. First of all the candidate for the desirable (?) situation must—

"Please give following Particulars:

1. Name and address of references.
2. Length of character.
3. Cause of leaving last two situations.
4. Did you or your employer give notice?
5. When disengaged.
6. How long out of situation?
7. What wages have you been receiving?
8. What position have you held in last two situations?
9. Age, height, married or single, and what family?
10. Have you any knowledge of bee-keeping?
11. Are you strong, healthy, and an abstainer?
12. Have you been accustomed to use a scythe?
13. Can you have a good character for qualifications and good temper?
14. Please give an outline of your career, and the work you have been accustomed to do since (sic) the last twelve years."

Next follow the advertiser's requirements, and mention of the work and its remuneration:—

"I require a strong, healthy, active, quick, willing and obliging man, who thoroughly understands the routine of a gentleman's small place; methodical, systematic, and orderly in his habits, punctual, and an abstainer.

Must thoroughly understand the cultivation of fruit, vegetables, and flowers. The duties I should require outside garden-work are—carrying coals, cleaning boots (no knives), cleaning windows outside, and making himself useful when necessity requires.

My place is small, about $\frac{1}{2}$ to 1 acre in all, small conservatory and greenhouse, and a few frames.

We are three in family. You would have no assistance. We take an interest in our garden, and work it ourselves sometimes.

The wages I give to a thoroughly experienced single-handed gardener, who comes with a good character, are from £55 to £65 a year (payable monthly, calendar month, not four weekly) with a calendar month's notice on either side from any date, and at the end of the first year's service a rise of £3. There is no cottage, and you would have to live off the premises, finding your own lodgings. Your working hours would be:

From March 15 to Nov. 1 from 6 A.M. to 6 P.M.
" Nov. 1 " Feb. 15 " 7 A.M. " 5.30 P.M.
" Feb. 15 " March 15 " 7 A.M. " 6 P.M.

with one hour for dinner, half-an-hour for breakfast, and a quarter-of-an-hour for tea, which the gardener brought with him. On Sundays your work would be the usual necessities only: boots, coals, watering, &c., and if on week-days it is necessary to water the garden after 6 o'clock on account of the heat, I would require you to do so; and in winter you would have to return at 8 or 8.30 P.M. to attend to the conservatory and greenhouse fires.

Cottages can be obtained here for about £10 a year, and furnished rooms from 2s. 6d. to 4s."

Put briefly, we see that the advertiser, in spite of his or her indifferent grammar, expects to obtain the services, for twelve or more hours a day, with extra work in summer and on winter evenings, of a man of good character, experienced in various branches of gardening, and in certain indoor occupations. The munificent wage offered is £5 8s. 4d. twelve times a year, with no extra privileges, and the necessity of providing board and lodging for himself and possible family.

OPEN SPACES IN LONDON.—Our readers will be interested to learn that the Metropolitan Public Garden Association have completed the laying out of the recreation grounds at East Street, S.E., and in Charles Square, N.; and these are now open to the public. The grounds in York Street and Kipling Street, S.E., are approaching completion, and will be soon be ready for the public. The West Ham Corporation have agreed to undertake the maintenance of a disused churchyard at Plaistow, E., which this Association had offered to turn into a public garden. The Association hope to be able soon to lay out the Paragon, S.E., and a neglected square in Dalston.

FLOWERS IN SEASON.—Mr. C. G. VAN TUBERGHEM, of Haarlem, sends us flowers of *Tulipa Sprengeri*, a late-flowering species, with glabrous peduncles, bright orange-red self-coloured flowers, without any central blotch, outer perianth-segments broadly lanceolate, narrower than the ovate-acuminate petals.

The filaments are red and glabrous, the anthers erect, yellow, stigmas sessile. It is not in the Kew list dated 1895. *Ranunculus myssamis* (?) is also sent by Mr. VAN TUBEROHEM. The name is not in the Kew hand-list of perennials, nor in the *Index Kewensis*, hence probably it is of recent introduction. It attains a height of 2 feet, with stems covered with coarse, appressed hairs, deeply, palmately-lobed leaves, and pale yellow flowers in loose terminal cymes. Each flower is about 3 cent. across, with reflexed, hairy sepals, often semi-double, and a cylindric receptacle. With these came a collection of Irises of great beauty and variety, but as the tickets became detached, it is best not to specify them.

THE SILVA OF NORTH AMERICA.—The eleventh volume of Professor SAROENT's monumental work has just been published. It is devoted wholly to the genus *Pinus*, and is therefore of unusual interest. We shall refer to it at an early opportunity.

PROTECTION OF COMMONS, ETC.—The recently-issued report of the Kent and Surrey Committee of the Commons Protection Society is of much interest to all who are in any way concerned with the breezy uplands and Broom-gemmed commons, of footpaths and general right-of-way in country districts. Much has already been done in the years that have passed since this valuable society was called into being, and much still remains to be done by all lovers of rural beauty and right doing. How this is to be accomplished in the easiest, cheapest, and most thorough manner may be learnt from those pages. Rural "Councils" have much in their power, but in the multitude of "councillors" there is not always wisdom. The reason why is shown in this report, which we have only room here to recommend to the reader.

METROPOLITAN CONGESTED SPACES.—Complaint has been made in the public press in relation to the shutting out of the children from the enjoyment of the fresh greensward in some of the smaller open spaces under the control of the County Council, the youngsters having very literally to take a back seat in order that their elders may have their innings at lawn-tennis, croquet, &c. Of course, those who pay have a right to play; but so have the little folks, for whose benefit, principally, the grass has been laid down in so many nooks and corners, in disused burial-grounds, &c. There is little doubt of the ability of the County Council to cope with the difficulty once their attention is drawn to the subject. One more cause of what we have termed congestion is the over-planting of limited areas with hardy shrubs and laying-out of flower-beds, not always in keeping with the space at command. As we have said, it is not so much a garden as a place for recreation that is lacking amid densely crowded populations. *Verb sap.*

SIGNOR ROVELLI.—The *Revue Horticole* announces the death of M. ACHILLE ROVELLI of Pallanza at the age of 53. In his youth he was with ANDRÉ LEROY at Angers, then in Paris, after which he travelled in America, China, Japan, India, &c. The nursery at Pallanza is noted for the rare and interesting trees it contains, as well as for Camellias, which take the place of our Rhododendron.

STOCK-TAKING FOR MAY.—Whosoever would read aright the Board of Trade Returns for the month of May, must previously have studied the "Corn Averages" week by week. This will have prepared him for the fact that the increase in the value of articles of food, duty free, imported during the past month amounts to £2,188,676—the price, not of increased quantity, but of increased value, due almost entirely to the operation of a "ring" in Chicago, engineered, as it is termed, by a person who has netted as his share of the profits some five millions of dollars, and which has been made up, not from the pockets of the well-to-do, but from the thin purses of the masses, who, we are informed are week by week paying as the enhanced value of bread what is equivalent to a week's rent—where there is a family to feed. The only other increases of moment are for metals,

£103,856, and £246,323 in raw materials for textile manufactures. The total value of the imports for May is £37,706,378, as against £36,346,348—an increase of £1,360,030—the "value" of which we have just shown. Our usual excerpt from the "summary" table is as follows:—

IMPORTS.	1897.	1898.	Difference.
	£	£	£
Total value ...	36,346,348	37,706,378	+1,360,030
(A.) Articles of food and drink—duty free ...	12,231,457	14,420,133	+2,188,676
(B.) Articles of food and drink—dutiable ...	1,997,958	1,987,342	—10,616
Raw materials for textile manufactures ...	5,160,092	5,406,415	+246,323
Raw materials for sundry industries and manufactures ...	4,143,172	3,609,859	—533,313
(A.) Miscellaneous articles ...	1,072,164	1,008,643	—63,521
(B.) Parcel Post ..	71,511	110,127	+38,616

We believe that, as a set-off to this somewhat sombre aspect of affairs, the home-trade is in a satisfactory condition, not bounded by realised dividends, a number of new companies set on foot, but by the returns from the Labour Bureau of the Board of Trade. The imports for the five months of the present year are valued at £196,987,003, as against £189,031,470 in 1897—an increase in value of £7,955,533. The record of decrease in these months is represented by £31,155 for Tobacco; chemicals, &c., £557,818; and £1,429,700 in raw materials for textile manufactures. The sum of £8,196,300 stands as the increase in the value of articles of food and drink, duty free! As to the fruit, roots, and vegetables imported during the month of May, the following figures are very suggestive:—

IMPORTS.	1897.	1898.	Difference.
Fruits, raw:—			
Apples ... ..bush.	123,928	97,400	—26,528
Cherries	56,278	10,385	—45,893
Plums	3,500	91	—3,409
Pears	502	496	—6
Grapes	3,843	3,228	—615
Unenumerated ...	89,463	88,573	—890
Onions	463,939	352,399	—111,540
Potatoes ... ..cwt.	385,640	1,055,256	+669,616
Vegetables, raw, unenumerated ... ..value	£158,244	£130,513	—£27,731

From this it will be seen that the only plus value is found under Potatoes. Possibly, our farming friends may be finding their profit in other than cereal crops. Turning now to—

EXPORTS

we find a gloomy picture—only machinery and mill-work showing an increase (£142,841). The value for May is £17,891,354, as against £19,322,146 in May last year; or a decrease of £1,430,792. The largest decrease is to be found in yarns and textile fabrics which have fallen off by £907,984; raw materials fell off by £224,784; metals, and articles manufactured therefrom (except machinery), declined by £221,648; chemicals, &c., went down by £75,548; next above the parcel post item is the falling off by £19,235 in articles of food and drink. The five months' exports amount to £93,094,483, against £98,320,455 for the same period in 1897—a decrease of £5,225,972. Of course, "wars and rumours of wars" have much to do with all this; there is no set-off against the large bill we have to settle with the United States for food-stuffs.

PUBLICATIONS RECEIVED.—*The Californian Vegetables in Garden and Field*, by E. J. Wicksen, A.M. (Gay & Bird, 22, Bedford Street, Strand).—*Handbook of Practical Botany*, by E. Strasburger, edited from the German by W. Hillhouse, M.A. (Swan, Sonnenschein & Co.).—*Catalogue of the African Plants collected by Dr. Friedrich Welwitsch*, by W. P. Hiern, M.A. (Trustees of British Museum),

containing the orders from Combrastaceæ to Rubiaceæ, with numerous valuable annotations.—*Dictionnaire Iconographique des Orchidées*, Cogniaux, Avenue de Spa, 51, Verviers.—*The Spread of Plant Diseases*, by Dr. Erwin Smith.—*Greenhouse Management*, &c., by L. R. Taft (Kegan, Paul & Co.).—*Elementary Botany*, by Percy Groom, M.A. (George Bell & Sons).—*Lessons with Plants*, by L. H. Bailey (Macmillan & Co.).—*A Text-Book of Botany*, by Drs. Strasburger, F. Noll, H. Schenck, and A. F. W. Schimper, translated from the German by H. Potter, Ph.D. (Macmillan).—*Weather Lore*, by R. Inwards (Elliot Stock).

PLANT PORTRAITS.

ALBERTA MAONA, stove shrub, with scarlet tubular flowers, *Garden*, May 21.
BORETTA CANTABRICA (= DABEOCCIA POLIFOLIA), *Garden Flora*, May 15.
CLEMATIS NELLY MOSER, flowers large, segments pale lilac, with a central red stripe, *Revue Horticole*, May 16.
HEDYSARUM MULTIJUGUM, hardy flowering shrub, *Garden*, May 14.
JUGLANS REGIA VAR. RUBRA, *Wiener Illustrirte Garten Zeitung*, May.
PEAR, ELEONORE LIEFMANS, *Bulletin d'Arboriculture*, &c., May.
POLYGONATUM BIFLORUM, *Meehans' Monthly*, April.
ROSA SETIGERA, the Prairie Rose, *Meehans' Monthly*, May.

COURTLANDS, NEAR EXMOUTH.

THE seat of W. Lethbridge, Esq., is most pleasantly situated on the east bank of the estuary of the River Exe, and being on rising ground from the water's-edge, commands most beautiful and interesting views of the sea as it widens out into the English Channel, with its shipping and fishing craft, for which the parish folk of Lymptone, and adjoining districts of Topsham have long been famous.

From the mansion and grounds, the lovely estate of Powderham, the seat of the Earl of Devon, can be seen also; fine views of the Haldon Hills, and the scenery up on the south-coast, embracing Starcross, Dawlish, and Teignmouth, and the lovely lands immediately adjoining.

Some hundreds of Begonias have been planted in the flower-beds, already many measure 18 inches to 2 feet across, and have stout stems and leaves. I have found Begonias to succeed best in this district in a shady and moist situation, and a light leafy soil. If the plants be exposed too much, or the soil is heavy, the strong sunshine causes the soil to crack, and this is very prejudicial to the plants.

Passing into the houses, on a shelf, in an intermediary-house, was a wonderful lot of Gloxinias, with stout foliage lying over the sides of the pots, and flowers rising in plenty, many of them being already open. These are grown in several batches, but the smallest have equal vigour to those first started. Of Carnations there is a fine collection of good varieties, and much cutting has thinned the blooms. Double Petunias are very showy; and zonal and show Pelargoniums make a good display. *Celsia crotica*, with its spikes of yellow blossoms, was gay and attractive; and a house full of Azaleas were just passing out of flower. In the orchard-house, which has a lean-to roof, I noticed on the back-wall some capital Moor Park Apricots, which had set sufficient fruits for a good crop; Pear-trees on single rods also looked well. Mr. Foster, who has charge of these gardens, invariably succeeds in obtaining crops from this house. Plums in pots cover the space between the Pears, and carry an abundance of fruit. Among the varieties I noticed Coe's Golden Drop, Belgian Purple, Kirkes, Jeffersons, and the Greengage.

The vineries are in capital condition. One has a span-roof, the rods being planted outside, and trained up one side and partly down the other. This house contained for the greater part Black Hamburg and Madresfield Court, and the appearance of the wood, foliage, and fruit was in all respects satisfactory. Melons were in excellent condition, and the same may be said of the Cucumbers.

In one of the plant-houses I noticed some splendid plants full of flower of *Oncidium flexuosum*, so useful a plant for house decoration that it is a pity it is not

more freely grown. *Oncidium altissimum* was also gay with its lengthened spikes, but in beauty not at all to be compared with the one just mentioned. *Cattleyas*, *Laelias*, *Dendrobiums*, and *Cypripediums* of the showier species are grown in some quantity, though by no means can this be considered an Orchid place. Among the *Cypripedium*, *C. barbatum biflorum* or *Crossii*: the broad dorsal sepal of this old variety stands up boldly, and slightly recurves at the sides; whilst the green lines on the lower portion of the sepal gradually change into deep purple. If at any time *C. barbatum* has been naturally crossed with *C. virens* this form may be the product; it is very worthy of culture, and useful for supplying flowers for cutting. *Clerodendron Balfourianum* is grown as small bushes in 7 and 8-inch pots, and a number of plants were recently gay with their white and crimson flowers. The plants after passing out of flower are rested awhile, and in late summer again encouraged, by which means a second crop of flowers is obtained in the autumn.

I noticed a fine lot of Fig-trees in pots, and a larger tree in the border. Figs again, outside protected by glass covers, were looking well.

In the kitchen garden, the three sorts of Peas now most promising are Veitch's First and Early, Exonian, and Goldfinder. These, Mr. Foster informed me, he can always depend on. *W. Swan, Exmouth.*

FOREIGN CORRESPONDENCE.

THE FISH RIVER.

(Concluded from p. 316.)

NEXT day I made an excursion to a mountain in the opposite direction, and I was much surprised to find a number of the same (?) *Stapeliaceae*, which I had found in the perfectly different climate of Lüderitzbucht. Two to five branches arising from a very short common stem, branches club-shaped and 4 to 5 inches long, at the top 1 to 1½ inch thick, very spongy and elastic, grey, without any spines or rudimentary leaves, covered with rows of flat papillæ. For the first time I found here, in dry watercourses, a most beautiful *Papilionaceous* shrub, 2 to 3 feet high, with ternate leaves, flowers in colour very similar to those of *Polygala myrtifolia*, but larger; pods terete, 3 to 4 inches long.

The day of departure had come with the arrival of the mail, just the evening before I had heard of the *Geitsi! gubib*, a mountain not far from Bersaba. As I had time, and my collecting portfolios were still rather empty, I hired two new men well acquainted with the path between Keetmanshoop and Bersaba, and started next morning for that place, which is only 60 English miles from Keetmanshoop in a northern direction. Not far off there was, in the sandy plain, a chaos of dark brown boulders (of a granitic mineral), the holes between them wonderfully filled out with hundreds of red-flowering *Aloes*, such as I never had seen before. There was also a charming *Hebenstreitia*, with extremely long, white flowers; and the common *Tribulus*, with its golden-yellow flowers 2 inches in diameter, crept over the naked stones. Later on the plain was covered with bushes of an *Asclepiad*, with very slender stems, narrow linear leaves, and small greenish-yellow flowers. The Hottentots use it for thatching their huts. The pit of Chelab, where I found half-a-dozen Hottentot huts, was full to its margin with a perfectly dark clay-coloured, thick water, which I could drink only with closed eyes. Oh! if I had always on my excursions such water! but often it is mixed with impurities of all kinds, and has, especially when heated by the burning sun, a not very agreeable taste of ammonia. It was well that I did not follow the advice of my men, who recommended me not to fill the water-bags here, as we should find water in the bed of the Uibes, where we intended to sleep. As we arrived there late, we found two pits in the middle of it, but not a drop of water in either.

The next morning, descending the Uibes, we arrived on a Vley. A Vley is a very hard smooth plain of yellow clay, on which one may find sometimes weeks after rain stagnant water in the deeper pools. Generally it is quite deficient of any vegetation. Almost always I found a creeping *Malvacea* with large leaves and thick clusters of deep blood-red flowers on it. A rather large quantity of seeds of this plant was sent to Haage & Schmidt, Erfurt. I do not know why it has received the name *Hakjesdoornvley*, as I saw not a single *Acacia detinens*

(*Hakjesdoorn*, Wait a bit!), but surrounding the stagnant water only: *Acacia* sp., *Salsola*, *Celastrus*, *Zisiphus*, an *Andropogon*, a *Lycium*, a *Convolvulus* with minute flowers, a *Sida*, *Aitonia capensis*, an *Atriplex* of the section *Halimus*, a leafless *Capparid*, with *Genista*-like dark green branches, orange-coloured flowers, and bean-like fruits, which, when they open, show coral-red seeds; and a *Gomphocarpus*, common everywhere in the whole country. There was also a colony of nests of a yellow weaver bird, the nests hanging with a thin thread of grass from the end of the spiny branches of *Zisiphus* above the water. For the first time I heard the roaring of a bull-frog, which has so striking a resemblance to the lowing of cattle that I used to look around for them until I saw my men laughing, which explained to me the origin of the noise.

BERSABA.

At 10 o'clock we crossed a hill, from the top of which I saw the white mission-houses of Bersaba, to the left of the *Geitsi! gubib*. At noon we had to cross the Fish River, at this spot 75 yards broad, and knee-deep. On its banks I found an *Ocimum*, a yellow-flowering *Nasturtium*, a very pretty tree-climbing *Momordica* with creamy flowers and orange-red fruit, containing about ten seeds enveloped in blood-red pulp, and great quantities of *Argemone mexicana*. On the way from the Fish River to Bersaba I noticed numerous Arrow-trees, whose wood is very much valued by wagon-builders. The species belong to the *Leguminosæ*, and it is a very stately tree, with thornless thick branches, and five to six pinnate leaves. At last, at half-past nine in the evening, we arrived in Bersaba, where I presented myself to the missionary, Mr. Hegener, by whom I was received with the greatest kindness. I was shown to the schoolhouse, where he had improvised a guest's room. The next day, a Sunday, I attended the service in the church. Mr. Hegener spoke in Cape-Dutch, which a Hottentot interpreter, standing below the pulpit, translated sentence by sentence into the Nama language. This language is a very peculiar one, as it contains four sounds, difficult to be pronounced even by many Hottentots. I was told that people who are not able to pronounce them, imitate them with the fingers. It is not at all a language suitable for preaching, as the interpreter is compelled to make ludicrous motions with his head to enable him to pronounce the sounds. Mr. Hegener showed me his garden, founded forty-eight years ago by the first missionary of Bersaba, Sam. Hahn. There were a splendid Vine, Fig-trees, *Punicas*, Pumpkins, Water-melons, Melons, and a great thicket of *Arundo Donax*. This giant Grass, grown so much in Italy, is used here to make the ceilings of the rooms. Besides, it is, when young, an excellent fodder-grass for oxen, but I have never seen it planted on a large scale for this purpose. I made the acquaintance of the Captain, and found him a very clever young man, who understands German and Dutch, and who was, before his election, the schoolmaster at Bersaba. He and some others have gardens, in which they grow Fig-trees, Pumpkins, &c. Water is supplied in fair quantity by several wells, and could be augmented by boring new ones. I advised the Captain to grow Kaffir corn, as this most precious plant will bear a rather salt soil, and does not require much manuring and water, though it is very grateful if it gets both copiously. The people find themselves obliged to begin with horticulture and agriculture, as the riderpest has showed them that cattle-farming alone cannot protect them from hunger in such difficult times.

Monday morning I started with my two men, another armed man as guide, and a blushing young buck, which I had paid for with a pound of tobacco, for the *Geitsi! gubib*. This is a wonderful mountain rising 700 metres above the Bersaba plain (1064 m.). It looks near, but we had to march for three hours until we reached the first stony hills, which lie around its base. On the way I found several very nice things, as a cactiform *Euphorbia*, a *Mesembryanthemum* (of the same section to which *M. nuciforme* belongs), as white as the masses of limestone between which it grows; a magnificent *Stapelia*, crossed with stripes of brown and bright green, with clusters of brown flowers, segments fringed; an *Ophioglossum*, which, if I saw it in a herbarium, I should take for our European *O. vulgatum*; four species of *Liliaceæ*, one of them apparently a *Drymis* with leaves most like the beautifully brown spotted leaves of *Phalenopsis Schilleriana*; an *Anacampteros*, and a tuber-bearing plant with flowers much resembling those of a *Lysimachia*, whose large tubers are eaten by the natives. On the abovesaid hill grew a shrubby *Acacia* with whitish cylindrical flower-spikes (like *Albizzia*).

From here I recognised the true nature of the mountain. It is a perfectly circular mountain, only towards the south is there an outlet about 60 yards broad, which forms a cascade 50 yards deep. This watercourse is accompanied on both sides by very abrupt chains, nearly as high as the mountain itself, which conduct the rain-water into the plain.

Descending into the valley I found a nice Fern, probably a *Cheilanthes*. Climbing upwards in the torrent-bed we found, after ten minutes, a great natural obstacle in our way, a cascade 6 yards deep, descending to a little pond. It was not possible to get over the obstruction without some precaution. It had although an almost perpendicular, very smooth rock, a few short horizontal clefts about an inch broad. However, we had to wait for sunset, as the sun had heated the rock so that we could not touch it with the hands, still less with the naked feet. With boots it would have been impossible. Without accident we arrived before the already-mentioned grand cascade, where there was also a little lake at its foot. As it was absolutely impossible to climb it, we succeeded, by taking a roundabout way, in reaching the interior of the mountain. It is like being in the crater of a volcano, or in an enormous arena, which is 1½ kilom. long, and 1 kilom. broad, surrounded by a chain of steep mountains 300 to 500 m. high. Our first care was to find a good camping-place, and it was found in a little watercourse close by the outlet. Charcoal and quantities of oxen-bones were lying about, and the Bersaba-man told me that cattle-thieves camped here a few weeks ago.

The flora offered me, quite against my anticipation, very few novelties. There were about a thousand *Aloes* dichotoms, which covered the whole crater-plain, some of them ascending even almost as high as the ridge; *Grewia flava*, and a *Grewia* with white flowers, bordered together with the "Brack-bush"—*Stinkbush*; *Acacia detinens*, several *Acanthaceæ*, and a *Verbena*. In stony places grew a very fine *Apocynaceous* shrub, with large and long-tubed white flowers; and two shrubs of which I could not state the relationship. All the other plants were such as are common everywhere in the lower country.

Although I could not, after such experience, expect much from an ascent of the Ring-mountain ridge, I decided to execute it the next morning with two of my men. In less than one hour we were on the highest point, where Messrs. Rehbock and Watermeyer had erected an obelisk of pieces of rock. The view from here was a very extended one over an enormous plain, sprinkled with low table mountains. The Fish River and some of its branches were now full to their margin, and the former could be distinguished at a distance of more than 100 miles of its length by its green tree borders. As the borders of the Fish River are indeed as low, as they seemed to be from this height, I am convinced that they will be converted in future times into fine and profitable *Eucalyptus* forests and gardens, which might well suffice to sustain ten times the number of settlers and natives who now form the population of the whole Namaland. My botanical booty consisted of two *Cucurbitaceæ*, an *Allosorus*, and a single specimen of a *Stapelia* new to me. In the late afternoon we returned on the same track to Bersaba, with the satisfaction of having ascended a mountain which only four white men had previously ascended. Now (January 24) I am sitting still in Bersaba without seeing the possibility of getting back to Keetmanshoop, as the Fish River is, in consequence of several heavy rains, so swollen that we cannot cross it. *K. Dinter.*

EASY ROOTING OF POPLAR CUTTINGS.

When arriving from the interior at Lüderitzbucht, a post-parcel from Messrs. Haage & Schmidt, Erfurt, containing cuttings of the common pyramidal Poplar was handed over to me by the customs officials. How astonished I was to find that all the 500 cuttings were rooted along their entire length, and most of them had made even five to six shoots. Both ends of the cuttings were overgrown by a very strong callus, and as the cuttings had all the same length, several of them were grown together at both ends. The cuttings were wrapped in moist moss, and they came to hand four and a half months after being despatched from Erfurt. *K. Dinter, Salem, Damaraland.*

THE CHORIZEMAS.

THESE beautiful New Holland plants, blooming as they do throughout the winter and spring months, are certainly worthy of culture for both greenhouse and conservatory decoration. *Chorizemas* are well

adapted for training up pillars or over a balloon-shaped trellis, and if well grown few plants are more attractive. The stock may be easily increased by seeds or cuttings, but those raised from seeds usually furnish the best results, having a tendency to grow and flower more vigorously. Seeds should be sown as soon as they have ripened in summer, in pots containing light sandy soil. If cuttings be used, select half-ripened shoots during July or August, and insert them in sand under a bell-glass. The greatest care is absolutely necessary in the preparation of the pot before the cuttings are inserted. Half fill them with carefully placed crocks, and cover these with rough fibre obtainable from peat. Over this place a layer of finely-sifted peat and sand in equal parts, and finish with well washed silver-sand. When the cuttings have been carefully dibbled in, water through a fine rose, and plunge the pots in a half spent hot-bed. Shade the cuttings from sun until they have rooted, and then pot them off into thumbs, and place them on a shelf on the north side of the greenhouse, close to the roof-glass. The compost best suited for the plants when they become large enough for shifting into 3 and 5-inch pots, and subsequently, is one composed of two parts peat, one of leaf-soil, and one of turfy-loam, with sufficient silver-sand and crushed charcoal to keep the whole light and porous. Pass the whole through a $\frac{3}{4}$ -inch sieve before it is used.

In potting ram the soil firmly and evenly round the sides of the pot. The best place for larger plants after potting, is in a close frame or pit where they may be syringed twice a day for a time. Ventilate cautiously until the roots are pushing freely into the new soil. The stronger shoots may then be pinched, to induce a compact stocky growth.

Manure-water, if well diluted, may be given with advantage about once or twice a week. Red-spider and thrips are sometimes troublesome, but these can be exterminated by repeated syringings with a solution of soft-soap and sulphur.

There are several varieties in cultivation, of which the following are amongst the best, *C. Henchmanni*, *C. angustifolium*, *C. cordatum*, *C. spectabile*, and *C. Earle*. The last-named is a compact-growing species, and blooms most profusely from April to June. *H. T. M., Stoneleigh.*

ACERAS BOLLEANA,

*Siehe, nov. sp.**

This fine terrestrial Orchid, which attains a height of about half a metre, Mr. Siehe found in the forests of *Juniperus excelsa* in the north of the Porta sibirica, 3100 m. above sea-level. Professor Haussknecht thought at first that it was *Aceras affinis*, but a comparative examination proved it quite distinct. The plant is very fragrant, the flowers green and rosy-red. No spots occur on the labellum. There exists also a very rare variety with quite green flowers; the leaves resemble those of *A. hircina*. There exists also a very rare variety, the flowers of which are quite green. It grows near Gullek, about 1100 m. above sea-level, in a loamy soil. The illustration (fig. 138) shows a flower-spike of half the natural size. *Dr. Dammer, Gross Lichterfelde, Berlin.*

HOME CORRESPONDENCE.

THE EFFECTS OF GRAFTING UPON THE GRAPE-VINE.—At different times I have been much interested in this question, of the effects of the stock on the graft, and *vice versa*; and probably one of my latest references to the subject in these pages was that of a case which came under the notice of the late Peter Grieve, of Culford, and myself. This case resulted in something remarkably like the Duke of Buccleuch Grape, through the grafting of the Golden Hamburgh on to the common Hamburgh. The Duke shoot in this case sprung from a point below that of

* *Aceras Bolleana*, n. sp., Siehe and Hausskn. [Half natural size. Height about 27½ inches. Flowers rose-coloured and green; rarely entirely green. A variety is forthcoming. Leaves as in *A. hircina*. From Gullek (?), at an elevation of 3009 feet, in loamy soil]



FIG. 138.—ACERAS BOLLEANA: COLOUR OF FLOWERS ROSE-RED AND GREEN.

the union, and was different from that of any other Grape in the vine. Years before I had visited the late Mr. Fleming at Trentham, and noted various modifications of colour, size, and quality that seemed the direct result of the crossings, or, in other words, of the effects of the scions of the stocks. Through the mistake of a generous friend, who supplied me with my first Vines for planting several houses, this matter was early forced on my attention. Hardly one of the Vines proved true to name, so nearly the whole of them had to be grafted, budded, or inarched. So soon as the first two bunches determined their character, the whites proved to be White Tokay, Tulliano, Calabrian, Raisin, and the Muscat of Alexandria—the latter in considerable numbers. The blacks were Black Prince, Gros Guillaume, Gros Colman, and West St. Peters. This Muscat proved the best stock, for Buckland Sweetwater, Foster's Seedling, Cannon Hall Muscat producing enormous berries without cracking, and also very fine finished Black Alicante, Black Hamburg of several varieties, and Buckland Sweetwater did well on Black Prince, Gros Colman, and Gros Guillaume. But while there was no change of colour resulting from the free crossing of the Vines, there were striking modifications of size, quality, and finish in most of the Grapes. The effects on growth, too, on such strong-growing Vines as Gros Guillaume, when furnished with a few fruiting Hamburg leads, was most striking; though, on the other hand, no attempt was made by the Hamburg bunches to imitate those of the stock in size or length. But these and other or greater changes have long been familiar to cultivators. This short cut to the hastening of fertility to-day lies in the direction of the right selection of scion and stock for this purpose. For several years we have found fertile stocks for old scions without number; in other words, we have been practising this doctrine of the dominating effects of fibrous and surfacing rooting stocks on the scion. It may be well at times to consider the reverse side of this question, viz., the effects this soon exercises on the stock. No fruit-grower denies either, as proofs are continually cropping up in regard to the mutual influence of stock on scion, and *vice versa*, but the causes still remain obscure. Hence your lucid explanation in your closing sentence, on p. 348, will be cordially welcomed, that "the changes are much more intelligible now that it is known that protoplasm passes from cell to cell instead of each cell being a closed sac." This may be accepted as the true reason of the dominating effects of fibrous and surface-rooting stocks in hastening and increasing the fertility of a plant, results which are more or less permanent. But so far as our present knowledge shows, the effects which the scion exerts on the stocks are erratic and uncertain, whereas if we accept in all its fulness this theory of sacless cells, and the free intermixture, without restraint of protoplasm, the effect of the scion on the stock should surely be far more constant and potential than anything we have yet seen, and might prove quite subversive of that general unity and uniformity of form, expression, and quality found in Vines and other fruits of mixed blood. The actual results of the changes noted through grafting and budding so far, seem to point to some sacs or atoms retaining a certain individuality, which reveals itself irregularly, while, in the main, working in harmony with the centre mass of protoplasm, which is building up the plant and its fruits. But Mr. Elliott's letter suggests another, and perhaps a yet more important point, viz., how far scions may weaken health and introduce disease. The shoots forwarded to you are not only shortened but malformed. Every grower knows that the mere fact of working a shoot of Madresfield Court on a Foster's Seedling, or either on a Hamburg, should neither weaken growth nor cause malformation. The fact points to something else being amiss with the stock than its wrong name. It would be interesting to know whether the Vine inarched was suffering from the Vine-mildew, that often leads to malformation and to disease. In either case, it would not be safe to work the infected Hamburg Vine at present, but to cut it down to the roots, and graft or inarch with Madresfield Court, or any other variety later on. By such means Mr. Elliott would probably get beyond the infected germs or protoplasm. But should he find any disease in the malformed shoots, it will be better to root up and burn the Vine, and fill its place with a cane from an adjoining Vine; or the soil might be removed from the border, put on the garden or farm, and rich, turfy loam put in its place, and a strong Vine planted as soon as practicable. I may add, that I have

never seen a case of malformed Vine-growth from budding or grafting, unless where fasciated shoots have been used for scions or leads. D. T. Fish, Fettes Row, Edinburgh.

THE LOSS OF M. JULES HYE'S ORCHIDS from the Temple Show, as reported in this week's *Gardeners' Chronicle*, came like a thunder-clap on the horticultural world, and every Orchid-grower in the country will sincerely sympathise with him in his loss, especially those who have so recently had the pleasure of seeing his collection in Belgium. The question at once arises, who is to blame? undoubtedly, the owner, or whoever was in charge, is to blame for leaving them in the tent till that time of night. For myself, I only had a few to pack, and I was out soon after 8 o'clock; and on returning half-an-hour later found the employés of Messrs. Sander, Cypher, and others in the trade still at it by the light of lamps and candles. It struck me at the time that there was every opportunity for plants to be lost, and this brings me to the point where I think the Society is to some extent to blame. Why not close the show in reasonable time, so that the exhibitors may both pack and get their plants loaded by daylight; at this time of year, say, close the tents at 4 P.M. Those who pay for entrance after that time include some who avail themselves of the opportunity of laying their hands on anything in the shape of flowers or plants. What more likely than one of that fraternity, seeing those plants stand by themselves in the darkness, without knowing anything of their value, took them up. I have another point to make. The show is closed at 6 P.M. (on paper), when the tents are to be cleared of all but exhibitors, but no clearance was attempted beyond one policeman calling out "Clear out, please." All the time packing was going on, the public were crowding and pestering for Ferns and flowers round every exhibit. This is not as it should be. But in justice to the Royal Horticultural Society, it must be said that it is not the only society which does exactly the same thing. I maintain when a society has more than a one-day show they ought to close early enough on the last day to allow exhibitors to pack up by daylight. If that had been adopted in the present instance, it would have been nearly impossible for those plants to have been taken away unseen by someone. I hope the lesson thus taught will not be thrown away, and that the Royal Horticultural Society will set the example of closing at more reasonable hours, to the benefit of every exhibitor in the kingdom. S. S.

MICROBES IN WATER, AND THE DAMPING OFF OF CAULIFLOWERS AND STOCKS.—Your correspondent, "A. D.," in his remarks on this subject, p. 317, in this journal of the 21st ult., says "Amateur gardeners are often in trouble from this cause, and as often asking advice." Now, I know from experience professional gardeners are likewise troubled with the same affliction. I remember the question, "What causes stocks to damp off?" being asked at a horticultural mutual improvement society's meeting, held in the North of England, where most of the members were professional gardeners. The question was discussed at great length, various opinions being given. I said then, and still say, that too much water is the main cause. It is quite a common practice with many gardeners to dip all boxes or pans containing Cauliflowers and Stocks, both before and after being pricked out, believing that the mere fact of their being dipped will prevent all danger from damping. Now, I maintain that as much, or even more, harm may be done by dipping than otherwise. How often do we see a box or pan held in the tank until the water shows up through the surface of the soil. Where this happens, it were just as well to water overhead at once, as by allowing the water to reach the surface from the bottom, the soil absorbs more water than it would do had the watering been done through a rose. Allow the water to reach the neck of the plant, and you may rest assured damping will follow. Not for a moment would I recommend watering either Cauliflowers or Stocks overhead, but just mention this to show how much harm may be done by over-dipping, and if microbes are present in the water, the more water absorbed by the soil the more microbes will the plants have to contend with. Dipping in water much colder than the temperature of the soil in the boxes is another help to damping. Here we learn another lesson. The colder the water the more microbes. The following plan I tried this spring, and found very effectual with both Cauliflowers and Stocks indoors; i.e., to surface each box with about a quarter of an inch of pure sand, sowing

the seed on this, and covering lightly with more sand, the boxes being watered a few hours before with warm water from the boiler. When pricking-out, I again surfaced the boxes with sand a little deeper, and was careful, when watering, never to immerse the boxes more than half their depth in the water, the temperature of which had been raised a degree or two higher than that of the house—a viney ranging from 55° to 60°—by adding warm water from the boiler. To this mainly I ascribe my success, having had very few losses from damping, although the plants, during the seedling stage, were kept in the moist atmosphere of a newly-started viney. W. J. Fife.

FORCED PEAS FOR MARKET SALE.—The remarkable samples of early marrow Peas shown by Messrs. Sutton & Sons at the Temple, very naturally set me wondering how far it might be possible to produce such fine samples in sufficient quantity and at comparatively moderate cost for market sale, to render such practice profitable. To judge of the very best varieties for this purpose it would be needful to see them growing under glass in precisely similar conditions, and even then it is needful to go further and ascertain the weight of pods a number of rows of a given length would relatively produce. Prior to the recent show, the examples of forced Peas hitherto seen have been usually produced on plants grown in pots and boxes. The Temple samples were from sowings made in long rows under glass, and furnished with sticks as in ordinary outdoor culture. The houses in which they were grown are long broad spans very light and airy, and whilst the dwarf varieties are sown nearest the sides the taller ones come more into the centre. It was good policy on the part of the firm to exhibit only four varieties, and these were all of the same average height, i.e., from 3 to 4 feet. But then in the four baskets of each variety shown, there were fully two bushels, thus making eight bushels in all, really in the respect of bulk a wonderful quantity for house production. The finest sample was Early Giant, bearing a grand pod, something like that of Duke of Albany. The Peas were of capital cooking size, the pods containing nine and ten green Peas, thus showing that the shelled product would be excellent. A. D. [Messrs. Sutton & Sons, in a communication received from them since the Great Show, inform us that on a previous occasion by the command of the Queen some of their marrowfat Peas were sent to Windsor for her Majesty's inspection and served at the royal table. This year two baskets of Early Giant were taken from the Show to Marlborough House by command of the Prince of Wales for use at the Derby dinner given by his Royal Highness. Ed.]

THE HARDINESS OF RESTIO SUBVERTICILLATUS.—In the *Gardeners' Chronicle* of July 6, 1895, in a note on the propagation of this plant by cuttings from the older stems, I pointed out the greenhouse as the most suitable place for its cultivation. In several gardens where it is to be found, it is grown in a temperate-house, or, indeed, in the stove. That this kind of treatment is not required, may be demonstrated, and it only tends to weaken the plume-like stems, and the plant gradually becomes smaller. From a batch of cuttings struck in the manner described in the above-mentioned note, one was placed in the cool end of the succulent-house, where it made good progress, and threw up stems about 3 feet in length. During the summer of last year this plant, at the suggestion of Professor Balfour, was placed outside in a wide recess between the houses, where it was sheltered from all sides except the south by the houses running at right angles from the corridor. Here it has stood the winter well, with only the protection afforded by its own dense plume-like growths (which, indeed, must be admitted is considerable), and a thin sheet of tiffany-shading thrown over it during frosty nights. The winter of 1897 was, of course, an exceptionally mild one, and the test of its hardiness was not a very severe one, only about 18° being registered here on the grass as lowest fall in temperature. During January two stout Asparagus-like growths made their appearance, but did not thrive. Just now there are about thirty young shoots to be seen, all when compared with the larger older specimen in a greenhouse of a very sturdy nature, and bid fair to develop in stems of extra strength. This may perhaps be accounted for, to a certain extent, by the vigour possessed by a young plant. In the warmer parts of the south and west of England, Ireland, and Scotland, where such plants as Tree-Ferns and Cordylines succeed, this plant might be expected to thrive; if, indeed, it does

not prove perfectly hardy anywhere in these islands. *R. L. Harrow, Royal Botanic Garden, Edinburgh.*

GRISELINIA LITTORALIS.—I do not think the flowering of this New Zealand shrub is common, although it does so here every year. I enclose a sprig cut from a bush 15 feet high, and 16 feet through. It would cover more ground, but we have to prune one side of it, owing to a specimen Holly which we have under the name of *Ilex Cunninghami*. This *Ilex* is a pretty plant, over 14 feet high by 16 feet through, but I am doubtful if the name is correct, so enclose a small sprig of it also. I may say the *Griselina* is quite hardy here, although it likes a sheltered place, and is an excellent shrub for the seaside. *D. S. Melville, Pottallock Gardens, N.B.* [The *Ilex* sent is *I. diptyrena*, of which the name *I. Cunninghami* is a synonym. *Ed.*]

GARDENERS' SELF-HELP.—Your correspondent signing himself "Subscriber," in his reply, p. 298, to "C. C." advises the latter to join the "Oddfellows, or some other benefit society," and, curiously enough, for one who writes as having a knowledge of gardeners and their doings, omits any allusion to our own particular benefit society, viz. the United Horticultural Benefit and Provident Society. May I suggest that this is the Society *par excellence* for gardeners, as in many ways it stands ahead of all other such societies; and it should be considered a privilege by all gardeners to be eligible for membership. I will only mention one of its great advantages, which is, that there is no fixed sum payable at death, or when the member has reached a certain age; but all the subscriptions he has paid, less the very reasonable sums required for management and sick-pay, stand in his name for withdrawal when he reaches 70 years of age, or, in the event of death, by the person whom he may have nominated to receive it, and it bears interest in the meanwhile. These moneys frequently amount to a considerable sum, sufficient to greatly alleviate the distress to which most gardeners' families are liable at such times, instead of the small fixed sum paid by other societies at death. *J. C. Tallack.*

THINNING KITCHEN GARDEN AND OTHER CROPS.—Few operations connected with the management of a garden are of more importance than the timely and judicious thinning of all crops; and not only is this necessary on the score of appearance, but for full success. Vegetable crops are not the only ones that suffer by the non-performance of this operation at the proper time, but hardy fruits on wall-trees and bushes, whose products will grow finer than if left to crowd each other. The work of thinning is more expeditiously performed when it is begun in good time. Small seeds of vegetables are frequently sown very thickly, hence the need of early thinning—that is, as soon as the plants are large enough to be handled. Turnips, Carrots, Parsnips, and Parsley suffer greatly if not promptly thinned, and in the moist weather prevailing in the spring the plants are easily pulled up. Generally speaking, Onions for the main crop should be left somewhat thickly in the lines, being further thinned when pulling for every-day use. I am an advocate for leaving Onions fairly thick in the lines, the bulbs in ordinary seasons growing quite large enough for all ordinary kitchen purposes. If larger bulbs are wanted, let them be grown on a piece of ground prepared, and set apart a few lines. The seeds of Beans and Peas are generally sown no thicker than they are expected to grow and bring to perfection, hence it is not necessary to thin in this case. When Lettuces of sorts are grown in lines where the seed is sown, and this is admittedly the better way with midsummer crops, it is necessary to see to the early thinning of the plants, as once drawn up and weak, are always drawn. The same holds good of Endive, Celery, Celeriac, Asparagus, and of the Brassicas, more especially when the seeds are sown in drills instead of broadcast. The crop that is soonest spoiled by lack of thinning is Radishes. In fact, it is the best policy to use only new seed, and sow thinly, as any drawing of the plants results in failure to form good bulbs, or, at least shapely, tender-eating ones; and the production of much leafage. It is a well-known fact, but one not always acted upon, that Parsley well thinned—say to 10 inches or more, will endure the rigours of winter with fewer losses of leafage or of plants than crowded, weakly plants. Plants standing at this distance apart form good masses of leaves that curl outwards and downwards, rendering it an easy matter to tuck some Oak or Chestnut-leaves

closely around each plant for winter protection, and further render the plants proof against frost and wind, the latter doing more harm sometimes than the former, by twisting and breaking the leaf-stalks. *H. T. M.*

THE SEASON IN N.E. ABERDEENSHIRE.—This has been a very trying spring. All vegetable crops have made little progress, owing to the cold wet weather. Since the end of April we have had very little sunshine, and a deal of rain. There have also been frequent showers of hail, and cold biting winds from the N. and N.E. There is no heat in the ground to encourage young and tender crops to grow. The fruit crop may prove to be an average one. *John Brown, Delgatty Castle Gardens, Turriff, Aberdeenshire.*

THE TENTS AT THE TEMPLE SHOW.—Is the efficient ventilation of a marquee-tent impossible, or even very difficult? If not, it is to be hoped that those who are responsible for the arrangements of the Temple Flower Show will do their best to remedy what was a great drawback to the show this year—the stifling atmosphere of the tents. No doubt many of the visitors were strong enough in nerve and stomach to continue in the tents without inconvenience or distress; but the many exceptions, especially ladies, whose nervous system and circulation are not vigorous, felt much discomfort, and after being pushed through one tent, without a chance of escape, were very glad to take refuge in the open air till they left the show. This complaint, it is true, is common when flower-shows are crowded. The tents at Shrewsbury last August were equally stifling, but the weather was much better. The most comfortable large flower-shows I have ever seen were at the Crystal Palace and the Westminster Aquarium. [1] *C. Wolley Dod, Edge Hall, Malpas.*

MARKET GARDENING.

MARKET GARDENERS', NURSERYMEN'S, AND FARMERS' ASSOCIATION.

A THIRD list of subscribers to the fund for defraying the expenses of an appeal to the House of Lords on the question of Rating of glass-houses, has reached us. The Association has determined to proceed with the appeal, although the response to the application for funds has not been so general as the importance of the matter demands. Assistance is solicited from the numerous growers who have not yet contributed. *George Monro, Hon. Treasurer, 32, King Street, Covent Garden, London, W.C.*

SOCIETIES.

ISLE OF WIGHT.

JUNE 4.—The monthly meeting of the Isle of Wight Horticultural Improvement Association was held at Newport on Saturday last. Dr. J. Groves, B.A., J.P., presided over a good attendance.

Mr. S. HEATON (Hon. Sec.) read a paper on "Bees," and Mr. F. MIDLAND exhibited and explained various bee-keeping appliances. These appliances received recognition in the form of a Certificate, as did a patent watering-can staged by Mr. J. E. WATTS, Sunbury Gardens, Middlesex.

Votes of thanks were accorded to Messrs. T. COLLISTER (Bembridge), and J. WILLIAMS (Gatcombe), for collections of *Aquilegia* (Veitch's New Hybrids).

THE SCOTTISH HORTICULTURAL.

JUNE 7.—The usual monthly meeting of members was held last night, Mr. M. TODD, the president, in the chair. Mr. ALEXANDER JOHNSTONE then read a paper on the *Fuchsia* and its cultivation, which was followed by considerable discussion.

Among the exhibits shown at this meeting was a beautiful white corolla'd *Fuchsia* named *Annie Laing*, said to be a most valuable one for market purposes. A fine spike of *Saxifraga pyramidalis*, measured 2½ feet long and over a foot wide across the base. This is one of many grown in Edinburgh by Mr. BAYSON. A fine bunch of a new yellow *Pansy* was shown by Mr. COMFORT. It is of a soft deep lemon colour with a velvety chestnut-brown centre. Three dozen bunches of excellent *Asparagus* were shown by Mr. SMALE of Blackford Park, Edinburgh. The grass measured

8 inches in length, each head being green and edible all the way from base to summit; this bunch of three dozen heads was 4½ inches in diameter, and weighed 1½ pounds. Thus every 108 medium-sized heads of *Asparagus* of this length would yield 472 pounds of nutritious food. This exhibit was the more interesting as Mr. SMALE had been reading the recent statements in the *Gardeners' Chronicle* respecting the merits of foreign and home-grown *Asparagus*, and staged his bunch as a fair sample of that grown in Edinburgh.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JUNE 8.—We have again to record the anniversary dinner of this gardeners' charity, which took place in the Whitehall Rooms at the Hôtel Métropole, London, on Wednesday evening last, under the presidency of Sir OSWALD MOSLEY, Bart., in the unavoidable absence of His Grace the Duke of Portland.

Preparations were made for an attendance of 150 guests, but the number attending fell somewhat short of the estimate. Among those present were the Very Rev. the Dean of Rochester, and Messrs. W. E. Gumbleton, J. B. Bennet-Poë, H. Veitch, J. P. Veitch, A. W. Sutton, O. Thomas, N. N. Sherwood, Dickson of Chester, H. B. May, P. Crowley, W. Goldring, M. Sutton, G. Norman, H. Williams, G. Monro, Assbee, and others. A greater number of gardeners were present than it has been our good fortune to remark on previous occasions.

The customary loyal toasts having been proposed by the chairman, and heartily responded to, he proposed the toast of the evening, "Continued success to the Gardeners' Royal Benevolent Institution," first requesting the secretary to read a letter from the Duke of Portland, in which it was stated that his doctor had forbidden him all exertions for the present, and he was glad his place was to be filled by so able a gentleman as Sir Oswald Mosley, and that he would be most happy to come forward on some future occasion. The chairman said he was no gardener, but still he had made an early acquaintance with one vegetable production, the Birch. Moreover, his grandfather was fond of botanical pursuits, and President, he believed, of the Horticultural Society of London. He thought every one should endeavour to instil in the minds of gardeners the benefits of self-help, and the necessity of rallying to the support of gardeners' charities.

Mr. H. Veitch, in responding to the toast, alluded to the regret felt by the Gardeners' Royal Benevolent Institution at the unavoidable absence of the Duke of Portland, but he was sure that Sir Oswald Mosley had the sympathies of the meeting. The institution was making good progress. Mr. Veitch further alluded to the additions made to the number of pensioners since the occasion of the last anniversary dinner, and to those who had passed away, the last of these in point of time being a gardener's widow, who, together with her husband, had received in money a sum of £408 in return for a small annual subscription. The pensions were increasing at the rate of £100 a year, and at the present time amounted to £3000 a year.

He thought that the success of the Institution was due in part to its benefits becoming better known generally. He spoke of the Victorian Era Fund of £5000, £400 of which had been obtained and invested, the interest of which was intended to afford assistance to unsuccessful candidates, the recipients receiving 15s. for each year they had subscribed. The treasurer read several letters of thanks from those who had been afforded donations. The Victorian Era Fund would still be kept open, a sum of £800 being required to complete the amount. The affiliated societies were most encouragingly alluded to, especially those of Reading, Wolverhampton, and Worcester.

The very Reverend the Dean of Rochester made an excellent speech on the toast "Gardening," carrying with him the feelings of those present, enlivening it by humorous anecdotes, allusions to the varied charms of old-fashioned gardens, with their surprises and characteristic features; to old-fashioned flowers, and of course to the Rose, the Dean's especial favourite. He thinks that our gardens are too few, possess too little beauty, and are too much alike.

The list of subscriptions included the following sums:—Duke of Portland, £52 10s.; Sir Oswald Mosley, Bart., £52 10s.; and £10 annual subscription; Jeremiah Colman, £52 10s.; J. Veitch & Sons, £20; Messrs. Rothschild, £10s.; Hurst & Son, £20; N. Sherwood and Miss Sherwood, £5 5s. each; the Dean of Rochester, £5; Dickson & Robinson, £35; per G. Monro, £131; and an annual subscription of £18 18s.; A. Sutton, £50; M. Sutton, £25; Baron Schroder, £20; A. Wilson, £20; Lord Wantage, £10 10s.; W. H. Lees, £21; Mrs. Courage, £25; F. W. Bond, £14 14s.; per G. Normao, £15 5s.; L. Salomon, £10 10s.; W. Thompson, £21; per G. Maycock, £10; W. J. Nutting, £8 8s.; G. J. Brackenridge, £7 7s.; per G. A. Dickson, £50-£100; the Worcester Auxiliary sent £70; W. Crump, £20; W. Jincks, £18 10s.; W. J. Baker for the Thames Bank Iron Co., £13 13s.; Fisher, Son & Sibiry, £10 10s.; C. Turner, £55s.; G. H. Richards, £10 10s.; and W. Corry, £5 5s. The total subscription amounted to £2,300. The Victorian Era fund received additions from N. Sherwood, £50; A. W. Sutton, £50; H. J. Veitch, £70; and L. Sutton, £50.

Obituary.

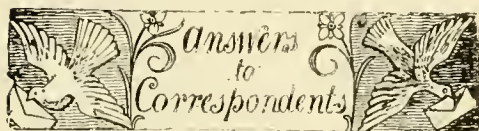
JOHN GIBSON.—Floriculture has lost one of its devotees in the person of Mr. John Gibson, Erleigh Road, Reading, who died very suddenly on the 7th inst. In a small garden at the back of his residence he cultivated Auriculas, having select collections of the best named show and alpine varieties; and he was also a raiser of seedling Auriculas, making careful and systematic crosses, and keeping an accurate record of the same. He was more fortunate in the raising of good new selfs than of edged varieties. He was especially successful with Seedling Alpines, and when looking over his collection in April last, I noticed he had a few among the white-centred section of decided promise. He was a great admirer of Daffodils, and cultivated a select collection of these. He also grew Tea Roses, and his small garden, which occupied a gentle slope towards the south, during the summer was rich in fragrant blossoms.

A florist of the old school, he always deplored what he regarded as the lowering of the standard of quality in Auriculas, contending that size rather than refinement was admired in the present day. Few men enjoyed greater pleasure among their favourite flowers than did John Gibson. Occupying a position of trust in the railway clearing-house, he was constantly travelling about the country, and always joyfully turned to his garden when at liberty to be in it. He was a member of the National Auricula, Carnation, and Chrysanthemum Societies, and was constant in his attendance at the meetings of the Royal Horticultural Society in the Drill Hall. *R. D.*

ENQUIRY.

"He that questioneth much shall learn much."—BACON.

CARBOLIC ACID IN SEWAGE.—I have, writes "G. H.," a well close to the garden, into which run the drainings from a laundry and stables, and the drains are washed down regularly with carbolic acid. Would this, if applied to fruit trees in general do any harm? I fear the acid would injure the plants, although hundreds of gallons of water go down the drains daily. Would any of our correspondents having experience kindly inform "G. H." if any harm to the trees is likely to occur.



BOOKS: Libra. *Botany for Beginners*, though out of print, may be picked up at the second-hand book-stalls; and Darwin's *Elements of Botany*, published by the Cambridge University Press in 1895, will afford you good elementary information on systematic and structural botany.

GARDEN LABOUR: W. J. P. So far as we can tell without seeing the garden, eight men and a boy would be the required number; that is, reckoning two men in the pleasure grounds and flower-garden, three men in the kitchen-garden, one man on the walks for weeding, &c., and two men and the boy in the glass-house; the master-gardener superintending the whole garden without a foreman under him. The men should be active, and capable of doing a fair day's work.

GRAPES: W. Button. The berries are affected with the minute fungus, *Glebosporium laticolor*. There is no known cure. You had better cut out all spotted berries, and burn them forthwith. Your methods of culture seem good, and they are not the occasion of the appearance of the fungus; neither would a totally different course of treatment bring it on the Grapes. *Glebosporium laticolor* affects other plants as well as Vines, and the spores are carried about by the wind. Syringing with water, in which sulphate of potassium at the rate of ½-oz. to 1 gallon of the former is dissolved, might do good in so far as it would destroy any spores alighting on the berries. After a certain time the risk of infestation would disappear for the year, as in the case of other fungus visitations of a like

nature.—*J. A. N.* A bad case of scalding, due to lack of ventilation at the right time.

MILDEW [?] ON TOMATO: C. E. W. Apply the Bordeaux Mixture or sulphate of potassium at the rate of ½-oz. to one gallon of water. If it really be mildew, perhaps flowers-of-sulphur would arrest its spreading over the plants, but it is likely to be some other species of fungus.

NAMES OF PLANTS: Correspondents not answered in this issue are requested to be so good as to consult the following number.—*A. D. W.* *Crataegus coccinea* var. *indentata*, so far as can be judged from the specimen sent. It should have scarlet fruit in corymbs.—*T. F., Germany.* The *Cattleya* is an ordinary form of the *Cattleya Mossiae aurea* class.—*K. S. L.* *Valeriana officinalis*.—*H. Musto.* *Euryclis sylvestris*.—*A. V. P.* *Dendrobium moschatum*.—*C. A. B.* 1, *Veronica gentianoides*; 2, *Spiraea filipendula*; 3, *Pteris aquilina*; 4, *Polystichum angulare proliferum*; 5, *Stapelia* species, send flower; 6, *Pachyphyton bracteosum*; 7, *Mesembryanthemum* species. The white on the portion of Apple tree sent is American blight. Dress sent winter with paraffin emulsion.—*J. E. P.* *Amelanchier vulgaris*.—*J. Claydon.* *Tacsonia exoniensis* ×. Seeds of this plant might be obtained of Messrs. R. Veitch & Son, 54, High Street, Exeter, the introducers; or of M. E. Benary, Erfurt, or MM. Vilmorin, Andrieux & Cie., Quai de la Mégisserie, Paris, but we greatly doubt if the plant reproduces itself true from seed, it being a cross.—*J. W. R.* *Ceanothus thyrsiflorus*.—*Cerasus*. *Prunus Padus*.

NARCISSUS GOING BLIND: J. C. L. The cause of the blooms never opening or "going blind," is still to be discovered. Some say it is due to moisture within the envelope, and may be averted by slitting the latter; others ascribe it to improper culture, the need of often replanting, &c. In our own case we have grown the Poet's Narcissus in the same soil for many years with the result that the flowers were always blind; this year, however, the same plants bloomed beautifully.

PEACHES DROPPING: H. G. The cause of the fruit dropping is luxuriant growth and insufficient ripening of the same. A dressing of lime would only make matters worse in this instance, as it renders a more abundant supply of nitrogen available for the trees. As soon as the fruits are the size of Walnuts, afford half a pound per square yard of border of the following mixture:—Three-sixths superphosphate, one-sixth steamed bone-flour, two-sixths muriate of potash, applying this mixture just before affording water to the border, and lightly fork it in. Do not make use of any other manure this year. Afford abundance of air during the day, and a small amount at night. At the end of the month of October let the soil be carefully removed from the roots, and lift the trees; see that the border has a good firm bottom at 2½ feet below the surface, and sloping to the front lights. Lay drain-pipes 8 feet apart across the border connecting with a main-drain outside, around and over these place a layer of stones or bricks 6 inches deep, and over these lay thin sods, grassy side downwards, and then replant the trees. If the old soil is sweet and in good condition, some of it may be used again, with the addition of one-sixth of the whole of turfy loam, and one-sixth charred earth. Keep the roots spread out evenly, and do not let them dip towards the bottom. *W. H. Divers.*

PHOENIX-LEAVES DISEASED: Newton. The fungus on Phoenix-leaves sent is *Graphiola phoenixis*, an ally of the grain-smuts. The disease attacks Palms of this and allied genera; it has been observed out-of-doors on the Mediterranean coast, and indoors in this and other countries. The spots bear the reproductive organs of the fungus, and from them spores are rapidly given off. The plant sent is probably too far gone for remedy, and will only be a source of danger to other Palms in your house. We should get rid of it. If the fungus were recognised in the earlier stages, a good strong mildew spray, such as Bordeaux Mixture (see the *Gardeners' Chronicle*, August 21, 1897) might be used. The fungus probably came with the plant, or was introduced with other Palms. For a figure of *Pestalozzia phoenixis* attacking Palms in a similar way, and *P. macrocarpa* found on Ferns and Palms in South Europe, see *Gardeners' Chronicle*, vol. xxii., 1884, p. 429.

SPOTTED LEAVES OF ODONTOGLOSSUMS AND CATTLEYS: J. D., Tooting; and T. F., York. These

spots on Orchid leaves are, unfortunately, too common. We have examined several cases, but do not care to ascribe them to the action of a fungus, nor to recommend any remedy used against these enemies. The spotting might well be the result of some error in treatment, especially in watering.

TOMATO-HOUSE: F. Y., Bradford. The larger house would be better if sunk 2½ to 3 feet in the ground. It would accommodate a greater number of plants, and be more economical in maintaining the necessary degree of warmth, and the fluctuations of temperature would be less than in a house having smaller cubical contents.

TOMATOS: J. Claydon. The plants are attacked by *Peronospora infestans*. Apply the Bordeaux Mixture, or sulphate of potassium, ½-oz. to a gallon of water.—*Constant Reader.* The plant is attacked by the so-called "Sleepy Disease," the result of infestation by a fungus, the *Diplocadium* and *Fusarium* stages of which were figured in the *Gardeners' Chronicle* at p. 709, vol. xvii., 1895. Root out and destroy by burning.

VINES: F. Your Vines are, we should suppose, in good order at the root, for the leaves sent are of much substance, and of good size for Muscat of Alexandria; but you have maintained too much humidity in the house, and not paid sufficient attention to the ventilation at the right moment, hence their yellow appearance. There was no fungus, and no insects were found on the leaves. We cannot, as a rule, reply to questions through the post; it would be too onerous.

VINE-LEAVES BROWNED: Amatcur. Although you have certainly afforded an excessive quantity of water to the soil of the border, the true cause of the disfigurement is lack of air when the sun is shining strongly on the house early in the morning. You should begin at this season to afford air at 6 to 7 A.M., and increase it by degrees as the temperature rises, endeavouring to keep it about 80° till the sun-heat declines, when the ventilation should be reduced in like manner till closing time, say 3 P.M., when a good damping down should be given.

VINES WITHOUT ARTIFICIAL HEAT: F. Y., Bradford. By erecting large lean-to vicieries, facing due south, and having fixed roofs glazed with large panes, and substantial walls at the back, with shedding on the north side to maintain warmth in the wall, such Grapes as Buckland Sweetwater, the best of the Chasselas, Foster's Seedling, and Black Hamburgh, would finish off satisfactorily; but it would be prudent not to hurry the starting greatly, for fear of a check from low temperature in May and early June, although such a risk would be eliminated by having a bed of fermenting tree-leaves and manure in each vinery until June was out.

WHITE BLOTCHES ON PLUM LEAVES: W. J. C. These blotches are caused by the case-making larvæ of a very small moth, of the genus *Coleophora*, probably *C. fuscicollis*. Spraying with petroleum emulsion would be likely to stop the damage. We do not think any serious harm to the trees is likely to result beyond the unsightliness, and the larvæ are now nearly full-grown. *R. McL.*

COMMUNICATIONS RECEIVED.—*A. McCulloch*,—*H. G.*—*A. J. & Co.*—*W. G.*, with thanks.—*G. M.*—*Shanghai*.—*H. R. W. Nancy*.—*W. M.*—*E. C.*—*R. J. Arnott*.—*E. C.*—*A. D.*—*R. D.*—*J. Mayne*.—*D. R. W.*—*D. T. F.*—*G. Henslow*.—*T. B.*—*W. S.*—*C. T. D.*—*T. W. M.*—*G. F. W.*—*J. O'B.*—*H. M.*—*A. H.*—*S. M.*—*J. W. R.*—*V. W. G.*—*Florence White*.—*G. Henley*, next week.—*G. A.*—*J. Gauntlett*.—*J. K.*—*Ymro.*

DIED.—Many readers will learn with regret of the death of Mr. STEPHEN SPOONER, of the Hounslow Nurseries, which took place at his residence at Hounslow on the 3rd inst., at the age of seventy-five.

CONTINUED LARGE INCREASE in the CIRCULATION of the "GARDENERS' CHRONICLE."

Important to Advertisers.—The Publisher has the satisfaction of announcing that the circulation of the "*Gardeners' Chronicle*" has, since the reduction in the price of the paper,

MORE THAN DOUBLED,
and that it continues to increase weekly.

Advertisers are reminded that the "*Chronicle*" circulates among COUNTRY GENTLEMEN, and ALL CLASSES of GARDENERS and GARDEN-LOVERS at home, that it has a specially large FOREIGN and COLONIAL circulation, and that it is reserved for reference in all the principal Libraries.

(For Markets and Weather, see p. viii.)



THE

Gardeners' Chronicle.

SATURDAY, JUNE 18, 1898.

ROSE EXHIBITIONS.

AS the season for these approaches, we find the old topics are pretty sure to come to the front: the unsatisfactory way in which the Roses are placed on the exhibition-table, the formal character of the boxes containing the blooms, the want of any artistic arrangement, are points upon which we are sure to hear a good deal, and we have been asked during the last two or three years—"Why cannot you show your Roses as Mr. George Mount of Canterbury does, with stems 18 inches or 2 feet long, so that they can be seen in all their beauty without the formality and monotony that surround them when they are exhibited in the ordinary method?" It may be as well to refer to this before proceeding further: the carrying out of such an idea for general exhibition is simply impossible; the plants from which those magnificent blooms are cut are all grown under glass, consequently no weather-stain can ever reach them; there can be no outer petals damaged by rain, or scorched by excessive sunlight. But it may be said, "Do not they exhibit this way in America?" Possibly; but then their Roses are all grown under glass, subject to the same conditions, preserved from the same misadventures, and cultivated without any regard to expense, for prices are obtained there for blooms which would be likely to make the months of our purveyors in Covent Garden water at the idea. Moreover, it would be difficult to obtain in many of our varieties cultivated in the open such long clear stems as those to which I have alluded. But even supposing that this difficulty could be obviated, I think it may well be asked whether exhibiting in such a manner would serve the ends for which our Rose-shows exist; we want to see and examine what are our best flowers. We do not allow any extraneous aid to be given to the blooms except the wire for stiffening the stems; all the flowers are by the present method brought clearly within the eye of the spectator, while the judges, when so minded, can examine each bloom without any difficulty—and hence, notwithstanding the outcry, I do not think we could improve upon the present system. I have seen Maidenhair used extensively, but somehow or other one always felt there was an incongruity between the graceful and delicate fronds of the Maidenhair Fern and the solid blooms of the Rose. It must be remembered, too, that no arrangement of baskets which can supersede the old style of boxes has ever commended itself to those who are most deeply interested in it, namely, the exhibitors. By

some it has been suggested that the back rows might be shown with long stems, while the front ones should be shown in the old way. I do not think that this would be a success. I have noticed, for instance, at the Temple Show groups of magnificent plants shown in pots, with a row of boxes of blooms placed in front, and, to my mind, both have been spoiled. The group should be left to display their unique beauty, while the stands of blooms should be placed elsewhere.

There are some few things which young exhibitors will do well to remember; indeed, I have seen them neglected by those who are "old stagers." One of these is the want of taste which is sometimes shown in the arrangement of the flowers; thus, I have more than once seen in a stand some half-dozen of red Roses of various shades placed in a row, and several light-coloured Roses grouped together in the same stand, and I have often longed to say to the exhibitor, "Why don't you mix them?" Both colours would gain by the contrast, and the stand would look infinitely better. There are some people who seem to have no eye for such matters, while with others it is a matter of intuition. We may not altogether like the present system, but there is no reason why we should make it worse by such violations of good taste. There is another matter in which young exhibitors, and indeed some old ones, are apt to make a blunder, namely, staging flowers which are a little too advanced: they go into their gardens the evening before or on the morning of the show, and they see a magnificent bloom of, say, Horace Vernet or Louis van Houtte, and they think that will make a grand feature in my stand, and so it would if it could be judged then and there; but it has to be placed in a box, carried some distance, and then perhaps exposed in a tent for half-an-hour before the judges come round to it, and when the exhibitor comes up to his stand, he is disgusted to find its beauty gone. It is, of course, very tantalising to have to put upon one side a bloom of such excellence, but he who wishes to win must make up his mind to act with Spartan rigour. Again, young exhibitors must be careful to take with them a box of what are called "spares," that is of blooms which are not much more than forward buds, but which the journey in the circumstances surrounding them will develop, so that they will be just at the state for putting in the boxes. I have known a stand of twelve which had been carefully arranged when the exhibitor left home of which not one met the judges' eye; they all had to be changed—in fact, this is one of the great difficulties of Rose exhibiting. You may arrange your stand of Chrysanthemums, Dahlias, or Carnations, and have only to draw them out when you come to the place of exhibition, and they will require nothing further to be done to them; but no such pleasant ways are the portion of the Rose-exhibitor.

There are also some Roses which have an unpleasant way of showing the centre of the flower prematurely. These varieties are very doubtful ones to put in the stand, and when the Roses are what are called thin, that is, without a sufficient number of rows of petals, this is very often the case. Young exhibitors also make a mistake in imagining that the Roses must be cut on the morning of the exhibition; the fact is, that though they may look fresh and beautiful, the dew that has fallen on them during the night is rather injurious than beneficial. If the blooms are cut in the evening before sundown, and the stands are placed in

an out-building where the ground around them can be plentifully soaked with water, the flowers will be a great deal fresher. I recollect once a stand having been brought from Exeter to Norwich, and taking off the 1st prize, one great merit of the stand being the freshness of the blooms; but then the exhibitor, Mr. R. G. Baker, knew how to grow his Roses, as well as to exhibit them.

There is another point on which the rosarians are much interested when they attend our great exhibitions, namely, the noticing what new claimants to their favour may be brought forward. As usual, the French growers bring out a host of so-called new varieties, but so few of any real value have been added to our lists of late years, that it is very unlikely that we should receive much from them this year. There is indeed a Rose, White Maman Cochet, which, if it should be really white, will be a most valuable addition to our white Tea Roses; but the great bulk of the novelties for which we are looking come from home-growers. As usual, Messrs. Dickson & Sons, of Newtownards, head the list, and I have just received from them two coloured plates and descriptions of their forthcoming novelties: the premier place amongst these is, I think, to be assigned to Killarney, this is a Hybrid Tea, and promises to be a real acquisition, the colour is flesh, shaded white, suffused with pale pink, the buds are said to be pointed, and would evidently imply that it is partly of Tea origin; like the Teas, too, it is said to bloom profusely through the entire season. In Ard's Rover we have a Rose of a very different character, it is a dark climbing Hybrid Perpetual, the colour is deep crimson, shaded maroon; it is not likely to be an exhibition Rose, but it will be a most valuable one for garden decoration, as we have nothing like it in colour in the vigorous garden varieties—it is said to be most luxuriant in habit. In Beryl we have a Rose which is likely to be in great favour where decorative flowers are looked for, it is a Tea Rose of branching, robust habit; the colour is rich golden yellow, and showing the long pointed bud characteristic of the Tea Rose, and wherever flowers are required for decorative purposes this variety is likely to be much thought of. In Daisy we have a Rose which its raisers believe will be serviceable for exhibition purposes: it is of moderate habit, but the flowers are of good size and perfectly formed; the colour is rosy pink, suffused with silvery pink. Another Tea Rose, suitable either for garden decoration or exhibition purposes, is Meta: as described by its raisers, it is a very remarkable colour, for it is said to be the colour of crushed strawberry, suffused with saffron, the base of the petals coppery-yellow, different coloured flowers being produced on the same plant; from its colour and robust character it is likely to prove a most valuable flower for decorative purposes. Rosarians will also be likely to look for Ulster, which obtained a Gold Medal last year at the metropolitan exhibition of the National Rose Society, and promised to be a good successor of Mrs. Sharman Crawford and Helen Keller.

Paul & Son's Royal Scarlet is a Rose that those who are anxious for decorative flowers will do well to look for: it has already been exhibited and greatly admired, and will be a fitting companion to their Carmine Pillar, and Single White; it is a true H.P., is of bushy habit, and the flowers are the nearest approach to scarlet we have amongst Roses—it is admirably suited for bedding, and the flowers are produced in rapid succession. Cooling's Purity

is another Rose which will gladden the hearts of those who are on the look-out for garden-flowers: it is a pure white early-flowering double Rose; it is a Hybrid Bourbon of medium size, perfect in shape, semi-climbing habit, and very free-blooming. I saw it at the National Rose Society exhibition at Portsmouth, and was struck by its decorative character. Another Rose from the same firm, called after that genial Rose-grower, Mr. R. B. Cater, comes with a high character as an exhibition Rose, the raisers call it magenta-carminé; it is a large full flower with stiff petals, and growers will do well to look for it at the Bath show of the National Rose Society.

It will thus be seen that the forthcoming exhibitions promise not to be devoid of novelty, and it is clear that those who are on the look-out for garden Roses will not be disappointed; we know not what surprises may be in store for us, but according to all appearances the present season is likely to be a gratifying one to lovers of the Rose. *Wild Rose.*

ORCHID NOTES AND GLEANINGS.

PLEUROTHALLIS.

THE species of this genus are in general not very attractive to the cultivator, who is apt in vulgar phrase to wish the botanist joy of the five hundred species. Very few indeed would gain an award of merit at the Orchid Committee, though many would deserve that which we take to be a higher commendation, at least when judiciously given, a Botanical Certificate. *P. muscoidea* has leaves less than 1 centimetre in length; *P. colossus* has a stem 1 m. 70 in height! *Pleurothallis Roezli*, just figured by M. Cogniaux in the *Dictionnaire Iconographique*, is a species that would find favour anywhere.

"DICTIONNAIRE ICONOGRAPHIQUE."

The following are the plants figured in the last number of the *Dictionnaire Iconographique* by M. Cogniaux:—

CATTLEYA LABIATA, Treveryan's variety. *Cattleya*, pl. 3 B.
CATTLEYA O'BRIENIANA, \times *Cattleya* *hyb.*, t. 8. A presumed hybrid between *C. dolosa* and *C. Loddigesii*.
CYPRIPEDIUM NIVEUM, *Rehb. f.*, in *Gardeners' Chronicle*, 1869, p. 1038. *Cypripedium*, pl. 10.

CYPRIPEDIUM HARRISIANUM VAR. *SUPERBUM*, *Rehb.*, *Gardeners' Chronicle*, 1869, p. 108. *Cyprip. hybrid.*, t. 11. The type was the first hybrid raised in the genus by Dominy, acting on the instruction of Dr. Harris. It is from *C. villosum* by *barbatum*.

CYPRIPEDIUM NIOBE, *Rolfe*, in *Gardeners' Chronicle*, 1890, viii., p. 9. Raised by Seden out of *Spicerianum*, by C. Fairclough. *Cyprip. hybrid.*, t. 13.

DENDROBIUM BETEROCARPUM, *Wallich.* *Dendrobium*, t. 10.

EPIDENDRUM CILIARE, *Linn.* *Epidendrum*, t. 6.

MASDEVALLIA COURTAULDIANA \times , *Rehb. f.*, in *Gardeners' Chronicle*, 1889, p. 200. A cross obtained by Mr. Cockson between *M. rosea* and *M. caudata* var. *Shuttleworthii*. *Masdevallia* *hybr.*, t. 1.

MILTONIA BINOTI \times , *Cogniaux* in *Gardeners' Chronicle*, 1897, xxii., 593. Supposed to be a natural hybrid between *M. candida* and *M. Regnellii* *purpurea*. *Miltonia* *hybr.*, t. 4.

ODONTOGLOSSUM TRIUMPHANS VAR. *LATISEPALUM*, *Cogniaux*, M. de Barri Crawshaw's fine variety shown under the name of Lionel Crawshaw on April 26, and figured in the *Gardeners' Chronicle*, April 20, 1895, p. 489. *Odontoglossum*, t. 8A.

PLEUROTHALLIS ROEZLI, *Rehb. f.* A purple-flowered species. *Pleurothallis*, t. 1.

SOPHRONITIS ROSSITERIANA, *Barb. Rodr.* A new species hitherto unrepresented in European gardens or herbaria. It has lately flowered with M. Peeters, of Brussels. The flowers are pale yellow, streaked with red. *Sophranitis*, t. 2.

WARSCWICZELLA WALESIANA, *Rehb. f.* Flowers stellate, with a large rounded lip, striped with blue. *Warsceviczella*, t. 2.

ORCHIDS AT SUNNINGDALE PARK.

In Major Joicey's beautiful and extensive gardens, the undulating surface affords at the present date a lovely picture in which the showy *Rhododendrons*, *Azaleas*, *Cratægus*, and many other flowering shrubs form a feature. Here is to be found an excellent example of a collection of well-cultivated Orchids, in which a great number of reputedly difficult subjects are grown to perfection by his gardener, Mr. F. J. Thorne. The secret, perhaps, is revealed in Mr. Thorne's reply to a remark of the writer on the

subject: "We grow our Orchids in the growing season, and are not content to let them merely live as some are."

The display in the house at the entrance to the first range entered is of no mean kind, the whole of the staging around the house being chiefly arranged with noble and clean specimens of *Miltonia vexillaria*. Each of the hundred or so of plants has been grown up from very small imported pieces, and at the present date they are literally covered with flowers. The finest plant to-day, bore, in 1895, when growing in an 8-inch pot, thirty-nine flower spikes, averaging seven flowers each, or about 275 flowers in all. This was figured in the *Gardeners' Chronicle* for that year. In the centre of a group arranged on the middle

was noted, together with notable examples of *Oncidium ampliatum majus*, *Sobralia macrantha*, *Cattleya Warsceviczii*, and other *Cattleyas*. Here the many specimens of *C. Dowiana aurea* grow rapidly, and Mr. Thorne has found it best to keep this plant in growth for the greater part of the year. In the third house the *Bolleas* and *Pescatoreas* grow well, and the most unpromising and leafless plants quickly become leafy and floriferous. Two large plants of *Peristeria elata* with immense bulbs, and sending up very stout flower-spikes, were noticed apart in a corner; and on the centre stage were several plants of a beautiful form of *Dendrobium moschatum* covered with flower-spikes. This plant was sent home by Mr. James Joicey from India five years ago; as were



FIG. 139.—*PTERIS CRETICA* VAR. *SUMMERSII*: HORT. MAY. (SEE P. 372.)

stage is another fine example of cultural skill, a large specimen of the yellow-flowered *Anguloa Clowesii* with nineteen flowers, and with it are the white *A. eburnea* with several flowers to each growth; *A. Ruckeri*, whose yellow-coloured flowers has chocolate-coloured spots; and *A. R. sanguinea* with dark red markings. All of these plants are finely bloomed. Overhead hangs a grand plant of *Luddemannia Lehmannii*, with three heavy racemes of curiously-formed orange and copper-coloured flowers, which number 161.

Around it were remarked many fine specimens of *Odontoglossum citrosum*, *Cattleya citrina*, *Dendrobium*, &c. Among other well-bloomed plants in the central group were *Oncidium longipes*, *O. Wentworthianum*, a *Cymbidium Lowianum* with nine flower-spikes, *Brassia brachiata*, *Lycaste candida*, and its rose-spotted variety *L. c. Lawrenceana*.

In the next house a fine show of *Cattleya Mossiae*

also the fine form of *Rhyncostylis retusa*, and several plants of major form of *Cypripedium exul*. The *Rhyncostylis* has white and rose-purple flowers densely arranged; and the best of the *Cypripediums* was certificated by the Royal Horticultural Society's Committee as Joicey's variety. Other good plants were likewise noticed in bloom.

In the same house we remarked a specimen of *Cypripedium caudatum* having tails 31 inches in length; besides plants of *Cirrhopetalum picturatum*, a noble *Cypripedium Curtisii*, some fine *C. Lawrenceanum*, vigorous plants of *Cypripedium niveum*, *C. bellatulum*, *C. Dayanum*, and several hybrids which were raised on the place.

Numbers of ornamental foliage plants are grown in most of the Orchid-houses, and in those where the greatest feats in Orchid culture have been achieved, the Orchids are suspended all over the roof, and the staging is covered with stove plants. In one

of these houses we saw specimens of the large, white-flowered *Epidendrum bicornutum* (*Diacrium*) which Mr. Thorne has grown for a number of years with increasing success. This season the plants have been covered with bloom; and a few of the spikes still remain on them. In the same house as these plants is a still more difficult plant to grow, viz., *Broughtonia sanguinea*, which is in perfection. It is a species that is scarcely ever without flowers.

Of the stove plants remarked *Acalypha Sanderiana* is the most remarkable; and among the remarkable crosses attempted with Orchids is *Cattleya Walkeriana* crossed with *Diacrium bicornutum*, the parent plant bearing a large seed-vessel. Another plant-stove contained some plants of *Dendrobium formosum giganteum*, very vigorous, and one of them now in bloom has been cultivated on the place for longer than seven years.

In the cool Orchid-houses we noticed that *Odontoglossum crispum* of a splendid type made a fine show; and there were *O. Halli*, *O. Pescatorei*, *O. polyanthum*, and other species, the prettiest of them

satisfactory to learn that some of the new varieties tested prove to be more or less resistant to the disease.

TRINIDAD BOTANIC GARDENS.

The *Bulletin* for April is now before us, and among the more important of its contents is the report of a lecture given by Mr. Hart on the subject of "Minor Industries." Minor industries may be defined as "side or subsidiary crops," in contrast with the important and essential ones, and undertaken perhaps from an experimental point of view to see if they would prove valuable in times of need or as efficient substitutes for established plantations. The lecturer pleads for different treatment in respect of these, and suggests that industries be no longer treated as "minor" when likely to assume a more important position, and that, since much is expected from the results of tentative cultural growths, these be regarded (by outsiders also) in the right spirit and with due allowance made for circumstances.

The colonial planter, in trying experiments, has to cope with prejudices and customs long established,

grafted from trees of the best kinds imported from India and from Martinique, and, owing to this statement, a gentleman residing a short distance from the Gardens sent to Martinique for a supply, totally ignorant that he could get an equally good quality within a quarter-mile of his home."

Other contents of the *Bulletin* are papers upon Fermentation, Parasitism in *Scrophulariaceæ*, notes on *Ustilago Maydis*, on Oranges, on Cacao, and on the Agricultural Exhibition lately and very successfully held.

METHODS OF PLANT PROPAGATION.

(Concluded from p. 356.)

CORMS AND TUBERS.—There are plants that form corms that are useful to ornament our stoves and greenhouses, so a few words about increasing stock of these may not be out of place. The *Cyclamen*, which, within the last decade, has advanced from an insignificant thin, strappy-petalled flower to a bold, substantial, and most attractive one; it has reached this by judicious selection from seed, and this method is undoubtedly the very best, as by sowing at the proper period, corms carrying at least a score of flowers may be had in less than twelve months—yet there are fortunate catches from seed, and when one has raised a very good thing, it is natural to wish to propagate it, as seed, however carefully saved, cannot be relied upon to reproduce a variety in its integrity. Division of the corm therefore is the only way open, and this is done thus: when the plant is in full vigour, while the corm is yet attached to the surface of the soil by its roots, divide it into segments, from the crown downward, taking care that every piece carries one or more leaves and some roots. Leave all to grow till the flowering period is over, and then lift the divided corm and complete the separation, potting up the pieces in sandy soil, just beneath the surface, and shading for a time. When the young stock looks established, give a gentle stimulant in the form of cow-manure or sheep-droppings in water, and a new corm will soon form at the base of the leaves above the segment of the old one. Keep these growing in a cool pit all through the summer, shading in the middle of the day, and looking out for slugs and wood-lice, and the young *Cyclamens* will reach the full flowering strength by the next season. The *Gloxinia* may be similarly handled, though as I have indicated in a former paper, it may be increased by leaf-cuttings. The *Gesnera*, and all its numerous allies, as *Tydas*, *Eucodonia*, &c., may be increased by the division of the fleshy roots, when after a period of rest they again show signs of growing. Divide the corm into as many pieces as there are buds or eyes, and then cover them with dry sand to absorb the released sap, potting up in a day or two, but not watering till the young growth appears above the surface of the soil, and then only sparingly.

It may be here noted that the best results as regards winter bloom are secured by using young plants, and not trusting to old ones, as I fear is often done. I remember once seeing a young batch of *Gesnera cinnabarina* in flower about Christmas, with grand spikes of brilliant scarlet flowers, and foliage to the pot, these had been obtained as above directed.

Other *Gesneraceous* plants, as the *Plectropomas*, *Chirita*, and the lovely, but little known, *Agalmis staminea*, are easily increased by root-cuttings, taken when growth is first excited in the early spring; while the *Achimenes* proper, as a rule, give us myriads of their curious catkin-like corms, which may be turned out of their pots and potted up singly, or placed five to ten in a pot, or what is better, a shallow propagating-pan, and grown on, making handsome little specimens for conservatory decoration, or for exhibition.

I have often thought *Achimenes* might be bedded out with great advantage in spots where the tuberous *Begonia* thrives, the soil being lightened by the addition of peat and sand, and the young plants put out in July, and sheltered till they have taken hold of the soil. *Experience*.



FIG. 140.—*ASPENIUM MAYI*: HORT. MAY. (SEE P. 372.)

being varieties of *O. hastilabium*, a species seldom observed in collections. Among other showy plants in bloom were *Cochlidia Noezliana*, *Masdevallias*, *Epidendrum Wallisii*, *E. radicans*, *Laelia grandis*, and *L. purpurata*.

The fruit-houses and the greenhouses were in first-rate condition, the trees in the first being heavily cropped; and the vinerias told of heavy crops of good produce.

In the open garden hardy perennials were in great beauty, and especially noteworthy the numerous clumps of beautiful varieties of *Iris germanica*, great favourites here. Mr. Thorne lifts numbers of roots every year, placing these in the inside Vine-borders, where they afford a welcome supply of flowers at Christmastide.

COLONIAL NOTES.

ANTIGUA.

A VERY elaborate account of the results obtained in the experimental cultivation of the Sugar-cane, drawn up by Messrs. Francis Watts and P. R. Shepherd, has been forwarded to us. The trials made include various new varieties (new, that is, so far as Antigua is concerned), and the results of the application of different manures. The canes are suffering much from *Rind-fungus* (*Trichosporia*); it is, therefore,

and to put up with advice that would be excellent if more practical. Those who do know the possibilities of soil and climate are poorly seconded in their efforts to develop them, for instance: "The Island of Trinidad would grow enough Mahogany and Cedar to supply the markets of Great Britain, and if the whole island was simply a Mahogany and Cedar forest, it would be one of the richest lands under Queen Victoria's rule; but it would be idle to think of ever growing the Camphor-tree of the East, or 'Canaigre,' and other things. Yet! who plants Cedar? Who plants Mahogany? I am sorry to say no one does. Instead of planting, our pastures are barren and destitute of trees, destitute of trees to shelter the very cattle that an estate requires. The fact that these do not thrive in such pastures is an accepted one, and yet trees are not planted."

Outside criticism, again, often injurious, is founded on utter ignorance of the circumstances. We read how: "A gentleman lately went to London from Trinidad after a residence of some twenty years, and while there goes to a broker for advice as to whether Rubber would grow in Trinidad, when, if he had come to the Gardens we could have shown him Rubber-trees 40 feet in height, and would have shown him also the quality of Rubber they produce. . . . On one special occasion a statement was made that we had no grafted Mangos on hand, when at the very time there were over 200 plants in stock,

FOREIGN CORRESPONDENCE.

TREE VIOLETS.

A NOVELTY, which to the best of my knowledge was first introduced into Germany by Mr. L. Vieweg, of Quedlinburg, and which has of late years found great favour with the public here, is the culture of Violets as small standards, especially since the introduction of the large-flowering variety Princess of Wales. During its flowering period a prettier sight can hardly be imagined than a "Violet Treelet" (Baumchen), as they are called here, of this variety, with its vigorous foliage, and large, fragrant dark-blue flowers, borne on stout and strong stems.

Their culture is very simple. The way we manage them here, where we cannot spend too much time over them, generally to the neglect of other equally-important things, is to cut away in the autumn with as many roots as possible, the longest and stoutest runners from plants which were planted in the open during spring. These are potted in 2 to 3-inch pots, neatly tied up, and when established they are finally brought through the winter in cold frames. In March or April, according to weather, they are brought out on beds, the pots being let in up to the rim. During the summer they must be repotted several times, carefully watered, and at times afforded liquid manure. All blooms must be pinched out, and the shoots shortened, in order to obtain nice bushy plants. In order to well ripen the crowns, they are not given any shading, and this ensures a good display of flowers. In October they are placed in cold frames until required, and in general they are treated like Violets for winter-flowering. There is a ready sale for the plants at remunerative prices. H. R. W., Stuttgart.

THE PRINCIPLES AND PRACTICE OF GRAFTING.

(Continued from p. 358.)

BUDDING.—The process of "budding," adopted principally in the propagation of fruit-trees and Roses, differs from that of grafting in the fact that only the more superficial tissues are concerned, the more deeply-seated woody tissues playing no part in the process of union between the stock and the scion as far, at least, as regards the more common method of "budding" employed. Hence it is that the path of the transpiration-current [the ascending sap so called] not being interfered with in the least degree, the operation of "budding" may be safely performed in the height of summer, and usually takes place in July or August.

In the axil of every leaf on the shoot of the year is a quiescent bud, destined, if undisturbed, to develop the following year into a branch. The leaves being removed, so as to leave but the base of the leaf-stalk remaining, a tangential shallow incision is made in the stem, so as to remove a short portion of the latter bearing the bud; as a portion of the wood will thereby be carried away, this must be carefully and neatly removed with the knife, without at the same time wrenching away the internal part of the bud. Successful budding can usually only be performed with quite dormant buds. If a bud has begun to grow, it is probable that the vascular cylinder containing the woody and bast tissues of the developing bud-branch, which is continuous with that of the stem, will be already partly formed; this being the case, in the attempt to remove the woody portion from the strip containing the bud, the internal tissues of the latter will almost certainly be torn out, for the vascular cylinder being intimately connected with that of the stem, and forming the chief framework of the bud, if disturbed, must inevitably carry away with it the surrounding tissues of the bud.

In the stem of the stock, whether in the older portion at the level of the ground or on a higher part of the stem, matters not, two incisions are made, a short transverse, and a longer vertical one running down from the centre of the latter, and of the same length as the prepared scion, both incisions being deep enough to reach the wood. The tissues on either side of the

vertical cut can then be easily raised so as to admit the scion, which must exactly fit into the pocket prepared for it, and will then have its inner surface in direct contact with the wood of the stock, its outer surface being somewhat overlapped by the outer tissues of the same. The whole is then tightly bound round with bast to prevent the entrance of sunheat or moisture, leaving the dormant bud and its subtending leaf-stalk alone exposed.

In the scion, when ready prepared for insertion on the stock, the tissues will probably be entirely cortical, and these living cortical tissues would thus become directly applied to the dead woody tissue of the stock. Now, while it is presumably possible that a partial union may be effected in this region by means of the cortical cells of the scion and some of the parenchyma-cells of the wood, or even of the still living newly-formed wood-cells themselves, the chief mode of union between stock and scion will be as follows:—After the cortical tissues of scion and stock had become united in the manner described above in the case of grafting, the rudiments of a vascular cylinder for the as yet dormant bud would be formed, whose cambial or generative layer would, by means of divisions in the cortical and bast-cells, become continuous all around with the same layer in the vascular cylinder of the stock, which cambial layer would proceed to form wood towards the inner side, and bast towards the outer side of both stock and bud, continuity being thus established not only between the cortical, but also between the conducting tissues of both scion and stock. The only region where a lack of vital connection between the two would exist would be the region immediately below the vertical axis of the bud, where the living cortical tissues of the scion rest immediately on the dead woody tissues of the stock. But this fact will not interfere with the further growth and development of the bud, for this unconnected region will rapidly become insignificant in area, and swallowed up by the subsequent growth in thickness of both stock and scion.

The above views on the rationale of grafting and budding, though naturally more or less hypothetical, are yet founded on a knowledge of the minute anatomy and the laws governing the activities of the vegetable tissues concerned, as well as on an acquaintance with the practical side of the subject; so that it is hoped they may be not unworthy the attention of the readers of this journal. W. C. Worsdell, F.L.S.

NURSERY NOTES.

MR. H. B. MAY'S FERNS.

VISITORS to horticultural exhibitions in London, have probably remarked on many occasions some choice Ferns from Mr. H. B. May's Nurseries, Dyson's Road, Upper Edmonton. We had recently the pleasure to visit the houses from whence these are brought—the factory where these Ferns are manufactured and increased. Thousands of plants there were of saleable size, ready for the packers; a still larger number of lesser-sized plants, and myriads of tiny pricked-off seedlings. Then, in the spore-raising houses, were seedlings but just showing themselves, and the first pricking-off was being effected, the operator transferring a number of these "babies" each time he used his stick, for they were yet too small to be isolated. The purpose to which all effort is directed is obvious enough; namely, to place as many Ferns upon the market as is possible with the means at command. Hence there is a continual moving-up, and in the end the gaps are made good from the "spore" or seed-house.

It is a most interesting work, and to a Rip Van Winkle we hardly know which would be the subject of most surprise, the extraordinarily large demand that now exists for exotic Ferns, or the immense supplies obtainable from such farms under glass, as Mr. May's and others. Batches of Ferns of ordinary type as they filled or half-filled a house were thus interesting just as they are beautiful, whether new or old. But novelties have a special charm, and these engaged the major part of our time and attention. Three of these were figured in our issue for April 28, and one of them, that of *Polypodium* (*Phlebodium*)

aureum var. *Mayi*, is one of the most valuable Ferns Mr. May has been fortunate to raise. It was fully described in our report of the Temple Show, and nothing further need be said of it, except that it is a most distinct Fern, and there is at present but one plant of it. *Adiantum Hemslayanum* and *Davallia fijiensis* *effusa*, also figured in the same issue, are valuable Ferns, the appearance of the first-named being quite distinct among *Adiantums*, whilst the latter is a spreading, extra vigorous variety of the pretty Fiji *Davallia*.

Of the genus *Pteris* there are two exquisite varieties in *P. cretica* *Sommersii* and *P. serrulata* *gracilis* *multiceps*. The former (see fig. 139) may be likened to a glorified *P. c. Wimsetti*, and received an Award of Merit from the Royal Horticultural Society in April last. The latter (see fig. 142) is a wonderfully crested form of the slender *P. s. gracilis*, and being bright in colour, is a very choice plant. But it is four years since, in 1894, the plant was awarded a First-class Certificate. The choicest of the gold-coloured *Gymnogrammas* is the variety *G. chrysophylla grandiceps superbum* (see fig. 141), awarded a Certificate at the Fern Conference some years since, and which in points of crested and abundance of powder is a considerable advance upon *G. c. grandiceps*.

At Mr. May's original nursery in Dyson's Road, where the offices are located, the Fern-growing houses branch right and left from a central corridor, and these houses are almost devoted to the plants, though occasionally one may notice some *Codiaeums* and *Cordylines*. Exotic and hardy Ferns (the former apparently predominating) in endless variety of the different species, some of them of appreciable distinctness, and others whose characteristics are not so evident, except to the specialist or the cultivator; it is a nursery where houses of elegant greenery form a contrast to the abundance of floral colour with which we are familiar elsewhere. And yet it is not all green, for how highly coloured are the young fronds of many of the *Adiantums*! There is also the variegation in the *Pterises* and other species. We can hardly praise the tinted Ferns too highly, but for the variegated ones there is not the same admiration. Perhaps it is that one does not want a variegated Fern at all."

Passing the collection of *Nephrolepis*, we single out *N. plumosus*. It is suspended in baskets, and for this purpose it is admirably suited. It is a variety of *N. davallioides* *furcans*, and its prettily crested fronds are narrow and recurved. Among the *Pteris* may be remarked *P. c. reginae* in the way of *P. Victoriae* and *P. tremula* *variegata*. It is very singular that the variegated form of *P. tremula* can only be obtained through seed from *P. Victoriae*; but Mr. May assures us such is the case. There was a fine batch, too, of *Pteris argyrea marmorata argentea* with large hard fronds of extraordinary substance. The handsome *Adiantum Farleyense* grows here easily enough, but the demand for the species prevents the retention of specimen plants.

Of *Aspleniums* we may mention *A. Mayi*, a pretty Fern with dark green, shining, hard fronds, making it a good, enduring decorative subject, either in the cut state or otherwise. (See fig. 140, p. 371.)

Of *Platycteriums*, *Polypodiums*, and many other groups, we must forbear to remark in detail; but in the large collection of *Gymnogrammas* there was a superb variety of the crested silver Fern, *G. Wettenthaliana*, and another of the gold Fern, *G. Alstoni*. In each case the variety shows more powder than the type, and the pinnae recurve, displaying the under-side.

Entering a house filled with *Codiaeums*, Mr. May remarked there was little new among the varieties, though the collection includes the best forms to date. The plants were certainly numerous and well cultivated, and a number of them showed capital colour, whilst others were in active growth. Crossing the road, there are numerous other houses, where again there are Ferns, also Palms, *Gloxinias*, seedling *Cyclamens*, thousands of *Carnations*, specially compact-habited white *Marguerites*, and *Lapagerias*, of which there are about one thousand layers taken each year.

There was a fine lot of the *Cordylines*, and some seedlings that are expected to show good decorative qualities. In answer to a question, Mr. May gave the following as being in his opinion the most popular half-dozen varieties:—Prince Manuk Bey, Lord Wolseley, Lord Roberts, *Elegantissima*, Madame F. Bergmann, and *terminalis*. We must not omit mention of the pretty *Aralias*, whose elegance of habit specially fits them for the ornamentation of the dinner-table.

THE FOUNTAIN.

This is one of Mr. May's branch nurseries, and the large market and trade business done is very obvious here. It is managed by Mr. May's son, and the most striking scene it presented was that of a large houseful of *Coleus*, in which thousands of brilliantly-coloured plants were upon one level, and could be seen at a glance. The scene was gorgeous, and our attention was directed to a wonderfully

just those that go to make a successful business man, he has succeeded to a remarkable degree.

MESSRS. DOBBIE & Co.'s NURSERY.

To those who have no previous knowledge, a visit to a great factory is merely a source of embarrassment; but when the visitor has beforehand a modicum of information, however small, his visit is likely to be instructive, and so a casual visitor strolling into such an establishment as that of Messrs. Dobbie & Co., of Orpington, would be bewildered at the quantities of things, many of them perhaps not in bloom, and wonder at the space and labour bestowed on such things. The florist, however, would be in a totally different position, and if he did not find much to interest and more to instruct him, we should say he was not worthy of the name. The nursery which with such enterprise Messrs. Dobbie, of Rothsay,

winter were, but then it must be remembered that the past winter was an abnormally mild one. Pansies abound, one would not off-hand say that this was a particularly good place for Pansies, rather the reverse; but here they are in as great variety as profusion, yellow, blue, purple and orange, whilst, in due time, we are promised a scarlet. It is worth noting, however, that the names of the colours attributed by florists to their productions had not always the same significance that they have in ordinary cases; the blue Primrose, for instance, to our thinking is plum-coloured rather than blue. China Asters are growing in great profusion, having been lately set out. They were in early June too undeveloped for us to be able to foretell their fate, but we believe in Kentish sun and air, and it has been proved that, like many other things, they need not be made in Germany. The Giant Comet is noted as much the best of its class.

Sweet Peas, Mignonettes, African Marigolds, Candytufts, Carnations, and Dahlias (or it would not be Dobbie's) here they are, and plenty of them, but, like many other things, they are things of the future. They will look very differently a little later on.

A turn, however, brings us to a brilliant display of hardy perennials, many in full bloom. Messrs. Dobbie's object is to secure a selection of the best and most satisfactory kinds; special attention is given to relative height—1, 2, or 3 feet and upwards. This is a comfort for the unwary and inexperienced amateur with small space at his disposal.

A patch of *Pyrethrums* was particularly brilliant at the time of our visit, including both single and double varieties. Both colour and form were remarkable, so that we imagine that the plants we saw are the result of much intelligent selection. Melton was noted as the best of all reds. Roses are likely to do well on this soil if afforded manure, and provision is being made for their culture on an extended scale. We left the nursery with a strong desire to see it again in the autumn, a desire which says much for the interest excited by our guide, by Mr. Pyfe, to whom we tender our thanks for the courtesy he showed us and the information he afforded.

TREES AND SHRUBS.

ARBUTUS MENZIESII (A. PROCERA).

AMONG the evergreen-trees found in the temperate parts of the globe, this *Arbutus* is one of the finest. In the forests of California and British Columbia, in moist and otherwise favourable situations, it attains to heights of over 100 feet, and as a trunk between 3 and 4 feet in diameter. In its native home it is known as the *Madroño*. Although in this country only comparatively small specimens exist, yet, where it succeeds, it is a very handsome evergreen, and as a flowering plant, perhaps the best of the *Arbutuses*. It has the reputation of being tender; but this applies to it more especially when young; at any rate, old specimens at Kew, about 15 feet high, have not suffered during even the hardest winters. It flowers with unfailing regularity every April and May, producing its blossoms on numerous racemes. They are small, white, and almost globular, the mouth of the corolla being very contracted. The leaves are thick and firm, oblong, and about 4 inches long; the upper surface is very dark green, whilst underneath they are slightly glaucous. It was discovered by Archibald Menzies during his voyage with Vancouver a little over a century ago, and afterwards by David Douglas.

PYRUS SALICIFOLIA

was this year the first to burst into bloom. Its flowers are white, and are produced in great abundance on the short corymbs characteristic of *Pyrus*. The young foliage when expanding is covered with down almost as white as the flowers themselves. When fully open, the upper side of the leaves becomes a silvery-grey colour, and they remain so until autumn. There is a small group of wild Pears with the same type of foliage (also early flowerers), and amongst them are *P. canescens* and *P. parviflora*, but *P. salicifolia* is the most ornamental. It grows



FIG. 141.—*GYMNOGRAMMA CHRYSOPHYLLA* VAR. *GRANDICEPS SUPERBA*: HORT. MAY.
(SEE P. 372.)

bright variety, the admixture of colours being very noteworthy. Myriads of Palms, Ferns, and other marketable plants, were noticed at this establishment. But a finer appearance is made by the nursery known as

MILL FIELD,

a mile or so distant, and the other side of Silver Street Station. These houses have been built by Mr. May, but in the case of The Fountain the place was acquired. The Mill Field establishment contains a number of large vineries for the cultivation of fruit for market. Ferns are again abundant in other houses here, and various species of plants that are destined for the market. We noticed a large number of profusely-bloomed plants of Turner's Crimson Rambler Rose, in 5-inch pots, surely as small as one can expect to flower Roses in successfully. There are Roses in the open also, which, during spring, are furnished with temporary covering, and afford early blooms.

Mr. May has been in business about twenty-eight years, and being a man whose general qualities are

have established in Kent, is a long narrow strip of ground between a lofty railway embankment on one side, and the slope of a hill facing south on the other. Similarly the ground rises from the entrance to the far end of the nursery.

The situation is open, the aspect bright and sunny, the soil a stony loam overlying chalk, but varying in quality in different parts of the ground. Seed-growing for trial and for trade purposes is carried on here on a large scale, comparatively little local trade being done. Great areas of bright colour may be seen from the railway-carriage windows as the traveller speeds by. One such blaze of colour at the time of our visit, in early June, was made by a quarter of Model White Turnip. Jealous of the reputation of this particular variety, no other variety is grown near it, indeed, we saw no other Crucifer of the kind within the nursery. On the other side of the path is a piece of Beet, which had been left out all the winter, side by side with a similar piece planted with roots which had been clamped.

It was curious to see how much more forward and productive the plants that had been out all the

20 feet or so high, and is of graceful, semi-pendulous habit. The leaves, as the name implies, are long, narrow, and acutely pointed. It is a native of the Levant, and is sometimes grown under the names of *P. orientalis* and *P. elegnifolia*.

CAMELLIAS OUT-OF-DOORS.

The *Gardeners' Chronicle* on many occasions has contained references to the value of the common Camellia as a hardy evergreen, yet it may be worth while to again draw attention to the success with which they may be cultivated in sheltered positions out-of-doors. In April one of the brightest and most charming shrubs in flower at Kew was a bush of the old variety *C. Donckelaeri*. It is in the *Rhododendron* dell (where it has been planted, and has flowered for many years past), and was covered with its bright scarlet-red flowers—a colour as unusual out-of-doors as it is welcome in April. But even without them the dark glossy-green of the leaves would give the plant a foremost place among striking evergreens. There are many other varieties that succeed equally well, but this is especially valuable, owing to the bright colour of the flowers, and the absence from them of any of that stiffness which is common to many Camellias. Plants that have become too large for the greenhouse, or are unsightly, may well be tried in some position outside where there is shelter from north and east. *W. J. B.*

MAKOLIA SALICIFOLIA AND M. STELLATA.

Amongst a number of other bold and showy species, these two forms have recently been flowering in the nurseries of Messrs. R. Veitch & Sons, Exeter, and have been much admired by those who have had the opportunity of inspecting them. The first-named is an evergreen species, and succeeds well with ordinary greenhouse treatment. The shiny, dark-green leaves remind one at a first glance of a small-growing Camellia, and if foliage only were taken into consideration, would be passed by without any special word of appreciation. The flowers are produced on short stalks, and are fleshy, and as is so usual with the greater part of this genera they do not expand very fully, but appear somewhat egg-shaped, only partly open. The colour of the blooms is of a rich creamy-white, with rosy-purple edgings to the petals, and a slight mottling of the same colour on the inside; but the foliage and the form of flowers are not the chief recommendations, as I consider that this species should be grown for the fragrance alone. As soon as the buds burst, one of the most delicious of scents pervades the house it is possible to conceive. Some little discussion took place recently as to the exact designation we should give to the aroma, one suggesting Pine-apple, another declared it was exactly like Heather-honey, whilst the third to whom the appeal was made agreed that both were right, but he would blend them.

M. stellata is a hardy, deciduous species, that is, it does well out in Devonshire, and would, I feel sure, in many other parts of the south and west of England and Scotland, and in Ireland almost everywhere; it is a free grower and abundant bloomer, and its expanding, star-shaped, pure white flowers, with slight flesh-colour, made it a conspicuous, and very interesting object in the border. Planted near a west wall, not fastened to it in any way, but treated just as a hardy shrub some 6 feet high; it has a large number of blooms, and has not been injured in the slightest degree by the cold winds and frosty nights. This, for outside culture, should certainly be met with more often. *W. Swan, Exmouth.*

TRAMPLING ON AN ONION-BED.

No doubt a firm bed is favourable to the successful cultivation of the Onion, whether this is found on the alluvial soil of Egypt or of Spain—not having journeyed so far I cannot tell; but I can describe how at this place I secured a good firm bed with very successful results. This experience arose out of a severe drought we had during the greater part of the summer of 1893. During the early spring of

that year we liberally manured a piece of ground for our Onions, on which, in due time, they were sown: though, owing to the great drought, they came to nothing. With the knowledge that the manure, or much of its goodness, was still below ground and unexhausted, we allowed the ground to remain undug all autumn and winter, until the next spring, when sowing-time came round again; we then merely scuffed off the weeds, gave the surface a slight pricking over with a fork, and on this confessedly rather slovenly preparation we again sowed our Onion-seed, which matured during the season of 1894 into the up-to-date way of expressing it, "a record crop."

The Onion-sowing day in Scotland was always looked forward to with considerable interest as being a very busy and eventful one, Onions in that country forming one of the main crops of the garden. This over, we felt a kind of comfort similar to that expressed in the "Village Blacksmith," "Something attempted, something done, has earned a night's repose." That the culture of the Cibeuls and Leek must be of great antiquity in Scotland is shown by Scott in his *Waverley* quoting some lines in reference to the Onion and Leek, which lines Scott himself admits to be ancient; here they are:—

"There's naught in the Highlands but Syboes and Leeks,
And laug-leggit Callants gaun wanting their breeks;
Wanting their breeks, and without hose and shoon,
But we'll a' win the breeks when King Jamie comes hame."

To the English reader I think it right to explain that sybo is the general name throughout Scotland for young Onions.

To account for the antiquity of the cultivation of the Leek and Onion in Scotland, we may, perhaps, be allowed to draw on a rather sounder basis than that of imagination, which is, in the belief held by some people of good education, that a portion at least of the "lost tribes of Israel" made their way to the north of Scotland, and that they may have brought those cherished culinary esculents with them; or, what is more likely and probable, that when arrived and settled in Scotland, they may have renewed a yearning after the Cucumbers, and the Melons, and the Leeks, and the Onions, and the Garlick, which they did eat in Egypt freely, but could not have in the Wilderness, or in Scotland either on their arrival. So as soon as they found an opportunity they would no doubt send for them. People from the east in early days used to visit the coast of Cornwall for tin, and it requires no great stretch of imagination to suppose that both Leeks and Onions may have arrived in this country by that way; from Cornwall to John o' Groats is not after all a very far cry. To strengthen the above theory of the presence of some of the lost tribes in the northern cities, we may be allowed to fall back on the generally acknowledged fact that no modern Jew ever succeeds in business up there.

Having said so much as to how the Leek and Onion may have obtained their geographical distribution, we might perhaps still further be allowed to ask whether our present representatives of the genus *Allium*, as grown in this country, are superior or inferior to those of the same genus as when cultivated in Egypt during the occupation of the Pharaohs, some 4,000 years ago or thereabouts. I am aware that this is a difficult, and I may also add, a very delicate point to argue upon; for be it remembered, these lines may be read by our leading Onion-growers and distributors. These "firms" have all their own very "special superb strains" of Leeks and Onions, and of everything else besides, certified on the trial grounds of the Royal Horticultural Society's gardens at Chiswick, and afterwards exhibited at the Society's Drill Hall meetings, when they of course obtained First-class Certificates, and Medals too, of which like Indian shawls, the supply seems to be inexhaustible; after all this I am afraid the Leeks and Onions, &c., of Egypt, would make but a poor show. *W. Miller, Combe Abbey, Coventry.*

STAPHYLEAS.

To the student of the geographical distribution of plants, the *Staphyleas* are interesting in two ways. In the first place, although a small genus of some seven or eight species, it extends round the whole of the north temperate zone; secondly, each species has its own particular locality, no two overlapping, or occurring on the same area. Starting from the eastern shores of the Atlantic, we have first *S. pinnata*, which is a native of South-western Europe and the Orient; then comes *S. colchica*, confined to the South Caucasian region; and, still proceeding eastwards, *S. Emodi* is reached in the Himalayas and Afghanistan. *S. Bumalda* and *S. helocarpa* carry on the genus to the Pacific Ocean, crossing which to the shores of Western North America, we find *S. Bolanderi* and *S. mexicana*. Finally, *S. trifolia* on the eastern side of North America brings us back to the Atlantic again.

The *Staphyleas* are usually shrubs, but are occasionally found large enough to be described as small trees; they have opposite leaves and branches, the leaves being always compound, generally consisting of three leaflets, but in some species five or seven, the terminal leaflet being stalked, the side ones nearly or quite sessile. The flowers are always of some shade of white, sometimes pure, at other times tinged with green or rose, and are borne in erect or drooping, terminal racemes. The seeds are enclosed in variously-shaped capsules, which being inflated, have given rise to the popular name of "Bladder-nuts." All the introduced species are vigorous growers, and thrive in rich loamy soil. To get them to flower at their best, a sunny open position is essential. *S. colchica*, *S. pinnata*, and the hybrid *S. Coulombieri* are really handsome flowering shrubs. The others have little beauty in their flowers, but are handsome, robust shrubs, and interesting because of their fruits. They can all be propagated by layers, or by cuttings put in when the wood has become moderately firm—say, in July or August.

S. Bumalda.—Of the four species of *Staphylea* at present in cultivation, this is the least ornamental, and the smallest in stature. It is a shrub 5 or 6 feet high, of vigorous growth, and perfectly hardy, but of a denser habit, and with more slender branches than any of the following species. The leaves are composed of three leaflets, which are ovate-lanceolate, toothed, the largest measuring 2½ inches in length. The flowers appear in a small, few-flowered raceme, all are white, only one-fourth of an inch long, and have both calyx and corolla erect, the latter being almost hidden by the calyx. The capsules are flat-tish, deeply bilobed, each lobe ending in a mucronate tip; the largest capsules are 1 inch across, and the seeds are about as big as peppercorns. Siebold figured it in his *Flora of Japan*, t. 95. It has also been found in China.

S. colchica.—This species is, without doubt, the finest of all the species of *Staphylea*, and in recent years has acquired considerable popularity as a shrub for early forcing. With a little heat it can be had in bloom at New-year time. It is a native of the South Caucasian region, and is a shrub 6 feet to 10 feet high, whose leaves consist of three (sometimes five) leaflets, which are 1½ to 3½ inches in length, ovate-oblong, the upper surface bright green and quite smooth, the lower one with a slight pubescence. As in the other species, the lateral leaflets are almost or quite without stalks. The flowers appear in early May, in broad compound racemes; the sepals are white, and, unlike those of the other species, are fully expanded, or more or less recurved, which adds greatly to the apparent size and showiness of the flowers; the petals are pure white or faintly rose-tinted, and are erect, recurving only at the tips. The flowers are each about 1 inch in diameter, and very charmingly fragrant, the perfume suggesting that of Orange flowers or Tuberoses.

S. Coulombieri ×.—M. E. André originally described this plant in the *Revue Horticole*, 1887, p. 462, as a hybrid between *S. colchica* and *S. pinnata*. It had, however, been cultivated by the gentleman after

whom it is named ("M. Coulombier père, l'un des plus habiles praticiens de Vitry, Seine") since 1872. Perhaps the most marked characteristics of this shrub are its sturdy vigour, and the abundance of its leafage. Whilst intermediate in many respects between its parents, it suggest *S. colchica* the more strongly. The racemes are more compact and less branched than in *S. colchica*, but the flowers (which are large and pure white) although showing the influence of *S. pinnata* in their more rounded form, have the sepals more expanded. The leaves are perfectly smooth and have three or five leaflets. It has flowered at Kew annually for five or six years past, and may be described as at least equal in beauty to *S. colchica*.

S. pinnata.—Next to *S. colchica* this is the most attractive of the *Staphyleas*. It comes nearest to it also in relationship and in geographical distribution,

with in a wild state as a small tree, 15 to 20 feet high. Loudon observes that the seeds are in some parts of Europe strung for beads, and that the kernels have a Pistachio flavour. The seeds ripen well in ordinary seasons; they ought to be sown soon after gathering, as they lose their vitality rapidly.

S. trifolia (American Bladder-nut).—Although not particularly common now-a-days, this species has been in cultivation in England for more than two and a half centuries. It is an interesting plant, ornamental more in regard to its foliage and habit than its flowers. Naturally, it appears to be a shrub 6 feet to 10 feet high, but it can, by removing the lower branches and by keeping it to a single lead, be made to form a pretty little tree. The flowers are produced from early May to July in short, pendent, racemose clusters, and are white, scarcely half-an-inch long, with the sepals and petals erect,

and corolla erect, each one is about $\frac{1}{2}$ inch long with the stamens exerted. Small although the flowers are, the bladderly capsulos (on specimens in the Herbarium at Kew) are $2\frac{1}{2}$ inches long.

S. Emodi.—According to Sir Joseph Hooker this is confined to a narrow range in the Himalayas and Afghanistan. It is a small tree with a spotted bark, trifoliate leaves, and small flowers densely borne in cymose clusters. The species is remarkable for the size of its leaflets, some of which are 7 inches long by 3 inches broad, also for the large bladders surrounding the seeds, some of which are 3 inches long. Dr. Aitchison, who found it in Afghanistan in some deep gorges of the Shëndtoi ravine at elevations of 8,000 to 9,000 feet, says that the branches, whose olive-green bark is splashed with white markings, are carried by the natives as a protection against snakes, because of the resemblance they bear to the skins of these reptiles. Judging by dried specimens and descriptions, the species would be an acquisition if it proved hardy.

S. holocarpa and *S. mexicana* are the two newest species—of them little is known; the former is a shrub 10 feet high and a native of China, whilst *S. mexicana* is a tree that has been discovered in the forests of the southern part of Western North America. W. J. Bean, Kew.



FIG. 142.—PTERIS SERRULATA VAR. GRACILIS MULTICEPS: HORT. MAY.

(SEE P. 372.)

being a native of South Europe, and extending thence to Asia Minor and Syria. Although not truly indigenous to Britain, it has been found apparently naturalised here, and is the first of the series of *Staphyleas* stretching round the northern hemisphere which the eastward-bound traveller would encounter. The pinnate leaves have usually five divisions, but occasionally seven; these are ovate-oblong, perfectly smooth, and of a bright green above, whilst paler or slightly glaucous beneath. The raceme is quite different from that of *S. colchica*, being longer and narrower, and more or less pendent. The flowers, too, are very distinct, the sepals being erect, and closing round the petals, and thus forming a somewhat globular flower, half an inch across. They are white, with a faint tinge of green, and generally appear early in May. The seeds are about the size of large Peas, and are produced in comparatively small bladderly capsules. Usually a shrub 6 feet to 12 feet high, this species is said by Duhamel to be sometimes met

the latter slightly overtopping the sepals. The seeds are produced in large bladder-like capsules from 1 to 2 inches long. These capsules, as well as its stronger habit, distinguish it from *S. Bumalda*; whilst from *S. pinnata* it is as readily distinguished by the almost invariably trifoliate leaves, *S. pinnata* having five or seven leaflets. A native of Eastern North America.

Although not yet introduced to cultivation, the following species may be briefly mentioned to complete the genus:—

S. Bolanderi.—This, the representative of the genus in Western North America, was discovered by Bolander "on McCloud's fork of the Sacramento River in the neighbourhood of Mt. Shasta" in 1874. It is said to be one of the rarest shrubs in the forests of Western North America. The leaves have three leaflets, and these are $1\frac{1}{2}$ to $2\frac{1}{2}$ inches long, broadly oval or orbiculate, and abruptly pointed. The flowers are in a short pendent raceme, and have the calyx

FLORISTS' FLOWERS.

THE YELLOW DUNDEE AURICULAS.

A LARGE bunch of yellow and self Auriculas and coloured Polyanthus sent me by Mr. D. Storrie, of Dundee, are remarkable for their luxuriant growth and thick flower-stems, some of them 18 inches, and more, in length. There must be virtue in the soil from which Mr. Storrie produces such enormous trusses. He states that he has a deep but somewhat stiff loam, and this, in combination with the climate, suits these plants well. The fragrance in his yellow Auriculas is particularly striking; a few trusses he sent me scent the room. My experience with the Auricula leads me to surmise that the yellow self flowers, whether pale or deep in tint, are the most fragrant. The showy group of yellow Auriculas exhibited by Mr. Storrie at the last meeting of the Royal Horticultural Society were distinguished by subtle fragrance, and this was one reason why they were commended for greenhouse and home decoration. If Mr. Storrie will select his seed parents, endeavouring to obtain smooth, well-defined pips, which show a greater surface to the eye than they do when they are jagged, rough, and reflexing, he will add greater value to the welcome strain he has obtained. R. D.

FANCY CARNATION "QUEEN OF THE FANCIES."

Several plants of this fine and new Fancy Carnation were shown by Mr. Turner at the recent Exhibition in the Temple; it is one of Mr. Martin Smith's raising. It is a yellow-ground flower, with longitudinal flakes and pencillings of bright crimson, a type of which we have very few varieties indeed, the principal representative being Benary's Stadtrath Bail, upon which it is regarded as a distinct improvement. In the case of the latter, the scarlet colour is on the petal-edges, and slightly on the petals, in the form of fine pencillings, but it is not the most robust of growers. In this respect the new Queen of the Fancies shows greater vigour, and is certain to come to the head of the Fancy division. A well-known Midland amateur cultivator and exhibitor of Fancy Carnations stated that he should discard Stadtrath Bail in favour of the new variety, which appears to be emphatic testimony to its value. R. D.

PLANT NOTES.

ROSA GIGANTEA, Crépín.

THIS new wild Rose, a native of Burma, discovered by Sir H. Collett, described and named by Professor Crépín at Brussels, and figured in the *Gardeners' Chronicle*, July 6, 1889, p. 13, is now, as already

noted in these columns, in blossom on the south façade of the Château Eléonore at Cannes, the residence of Lord Brougham and Vaux. It is a splendid plant, combining with vigorous growth a shining foliage, and the beauty of its noble large cream-coloured or slightly yellow flowers, turning nearly white before falling; they reach a diameter of nearly 6 inches. The large buds are of a rich deep golden colour.

It is difficult, without being a specialist in Roses, to make out its nearest affinities, and to say exactly the group to which it belongs. But I think that its best place is among the Banksianæ of Mr. Baker's classification of "Garden Roses" (*Nicholson Dic. of Gard.*), though the stipules are much more adnate than in the *R. sinica*, which it most nearly resembles.

The long rambling branches of *Rosa gigantea* are quite glabrous; greyish-green, but on the side exposed to the sun light-brown, armed with distant irregular prickles, often in pairs at the base of the leaves, especially on the lower ones. The hooked prickles are of moderate, nearly equal size, grey or brown, and rise from a long elliptical base.

Leaves 3 to 5 inches long, 5 to 7-foliate, glabrous, dull shining green on the upperside, paler on the underside. Leaflets elliptic or lanceolate, acute, finely but sharply serrated, with a distinct red border, and becoming larger in size, thus the end leaflet is the largest. Rachis armed with some red small prickles, and with distant glands. Stipules small, adnate, not or nearly half as long as the petioles, the margin densely covered with small red glands.

Flowers solitary, shortly peduncled, calyx-tube hemispheric, quite smooth; sepals long, entire, acute or ending in a leaflike point; outside green, tinged with red, inside white pubescent, margin glandulous, with glands of different length.

Petals large, broad, imbricated, yellowish-white. Disc large, styles much exerted, free, villous, stamens long. Fruit?

A distinct species, and from the size of the flowers, their colour, and the beautiful vigorous foliage, one of the most desirable of wild Roses. It is said, however, to be somewhat more delicate than others, and more subject to mildew. *A. Berger, Curator, La Mortola, May 2, 1893.*

THE WEEK'S WORK.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower, Burford, Dorset.

The East Indian and other warm Houses.—The majority of the plants in these houses being in full growth, a generous growing temperature should be maintained in them, employing a considerable amount of fire-heat at night in order that the warmth will stand at about 75° the last thing at night. As soon as the warmth increases in the early morning, thoroughly damp down, and when the warmth has risen 5° or 10° by sun-heat, a slight amount of ventilation may be afforded, not, however, lowering the temperature, but just to admit some fresh air. The air may become comparatively dry towards the middle of the day in order to consolidate the tissues. Let the house be closed between 2 and 3 p.m., and at the same time draw up the blind on the lighter side, and thus allow the temperature to be raised by sun-heat to 80° or 90°, damping the floors, especially behind and beneath the hotwater-pipes, and between pots and stages. Many species of deciduous *Dendrobiums* being now in full growth, with growing shoots freely making roots, the syringing of the lower sides of the leaves at closing time will be a great assistance, and free the foliage from red-spider and other insects. The *Phalenopsis*, *Bolles*, *Angraecums*, *Cypripediums*, &c., should still be shaded until the sun has lost its power for harm for the day. Plants of *Cypripedium Lawrenceana*, *C. Curtisii*, *C. ciliolare*, *C. superciliale*, *C. Stonei*, *C. Swainianum*, *C. grande*, *C. selligerum*, *C. barbatum*, *C. Hookeri*, *C. Chamberlainianum*, *C. callosum*, *C. euryandrum*, and *C. Eleanor*, inmates of the warm division, are fast going out of bloom; and as during flowering these species make scarcely any growth, it will be advisable, when the flower-spikes are removed, to ascertain if larger pots are required by them. None of these species should be kept in a pot-bound condition, and it is advisable to repot yearly, and

afford pots one or two sizes larger. Large specimens which may have become bare of growths in the centre are the better for being divided, the dead roots trimmed off, and the divisions placed in pots of a suitable size. Let the pots be quite clean, and if new, soak them in water for an hour. When commencing operations, half-fill the pot with clean crocks, and then place in the pot a portion of rough fibry-peat, fresh sphagnum-moss, with a few pieces of tufa, arranged in orderly fashion, worked into the soil, to aid in keeping porous. Freshly-potted plants are by some gardeners afforded a great deal too much water, with the result that the roots are soon lost from decay. As a rule for general observance, it may be stated that for a few weeks after repotting it is sufficient to keep the compost merely moist, till such time as new roots push forth. When thorough re-establishment has taken place, the quantity of water should be increased by degrees.

The Cattleya-house.—The plants here will require abundant ventilation by means of the lower ventilators, and the house should be damped down about 3 p.m., at which time air should be partially excluded. Let the roof-shading be rolled up after the great heat has departed, the hour depending on the position and lay of the house.

Mexican Division.—The plants in this house require only a very thin shading. Let the house be treated in the manner recommended for the East Indian-house, and afford *Lelia anceps* and others like it overhead syringings at closing time. By day the plants should be freely afforded air, and some amount may be left at the top and bottom at night in favourable weather. The temperature should gradually decline to 65° by the morning.

Intermediate-house.—The degree of warmth in this house should be slightly below that of the *Cattleya*, and a trifle higher than the *Odontoglossum-house*.

Cool-house should be freely ventilated when the external air is cool and moist, but with a drying wind blowing by day it will be better to dispense with ventilation at the top, although at night plenty of air may be admitted, the lower ventilators being kept wide open. Fire heat will not be necessary for the present. Be careful not to admit strong sunshine to the plants, and do all that is possible to keep the warmth several degrees below that of the other air.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener, Strathfieldsaye, Hants.

French Beans.—These plants, if they are sown thickly in the drills, should be thinned to about 6 inches apart, and afterwards the soil should be drawn up to them on both sides, and the intervening spaces hoed. A sowing of the Negro Long-pod, Ne Plus Ultra, or Canadian Wonder varieties, made at about this date, will afford a supply till the latest date that Beans can be had in the open air.

Scarlet Runner Beans.—If these plants are grown without stopping the points of the stems, sticks are needed almost as soon as the plants appear, the sticks being long or short according to the mode of treatment; that is as ordinarily-grown, sticks of 7 to 8 feet will suffice as supports, but if grown in manured trenches 10 to 12 feet will not be too tall. In light land a mulch of litter laid along the rows is necessary. Another sowing may be made during this month.

Capsicums and Chiles.—Plants raised from seed sown in the month of March, carefully grown-on and hardened-off, may be planted out in the southern parts of the country when warm weather has come, choosing the warmest spot for them, and a light, rich soil. Let the plants be freely syringed for a time in order to encourage growth, and to keep red-spider at bay.

Garden Swedes and Turnips.—A small sowing of Laing's Garden Swede may now be made in the same manner as Turnips. It is a vegetable useful in the spring, when Turnips of good quality are unobtainable. Turnip-seed should be sown frequently up to Midsummer-day. The land for the crop should be well prepared, and a sprinkling of guano or fresh wood-ashes or charred soil should be afforded the plants just when they are germinating. The plants should be thinned before they spindle from being crowded.

Vegetable-Marrows may still be planted, choosing for them a spent hot-bed or a manure-heap, and affording the plants a good bed of rich soil in which to grow, as the more luxuriant the growth the larger the crop.

Potatos.—Potatos with us are making quick growth, and earthing-up is become necessary with the earlies and second earlies.

Winter Brassicas.—If Broccolis, Borecoles, Savoy, and Brussels Sprouts have been sown thickly, either in drills or broadcast, pricking off will be very necessary in order to have the plants in a fit state to set out when the time comes. Let a sufficient number be pricked off so as to leave a margin for rejected plants.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener, Woolverstone Park, Ipswich.

Greenhouse Climbers.—Timely attention should be given to thinning out superfluous shoots, and adjusting and tying the remainder in such a manner that they are seen to the greatest advantage. Plants fastened to walls and pillars should have all the main growth securely tied in, and the lateral shoots allowed to grow in their natural manner. Should the growth be rampant, and likely to become an entangled mass, thin it out boldly, so as to permit of strong development and abundant flowering. This advice applies chiefly to *Plumbago capensis*, *Tracheliospermum jamaicensis*, *Solanum jasminoides*, *Cestrum* (*Habrothamnus*) in variety, the *Jasmines*, *Hoya carnosa*, *Lonicera*, *Kennedya*, &c. For *Asparagus plumosus*, and *A. tenuissimus*, *Mysiphyllum asparagoides*, *Lapageria*, and plants of similar habit, it is necessary to untwine the growths from about the wires, and tie them in evenly over the area to be covered, for when allowed to grow for any length of time without this kind of attention it is difficult to carry out the work without breaking and damaging the growths. Water should be copiously afforded to the borders and potted plants. Some climbers are liable to be attacked by Trips, which rapidly soil their appearance if not eradicated when first noticed. The best remedy to use against them is Richard's XL All Liquor.

Liliums.—Plants which are in need of staking and tying must be attended to without delay; and let a sharp look-out be kept for green-fly, dusting the plant with tobacco-powder or fumigating them if the pest be present. Lilies should be afforded weak manure-water frequently, and be placed in a cool, airy house or pit, and upon a moist base. If any of the plants are to be retarded in regard to their flowering, place them in a cool, airy shed and they will keep in a fresh condition for a considerable length of time.

Pandanus Veitchi.—A good stock of healthy young plants is invaluable in establishments where much room and table decoration is required of the gardener. For increasing the stock of this plant take any well-coloured suckers that may be showing at the base of an old plant, and detach them by screwing them round; then smooth the end of each with a knife, removing a few of the basal leaves, so as to allow the roots a ready passage, and insert them singly in small, deep pots, using a light sandy soil, and placing them in the propagating-box. Only bright, well-variegated suckers should be taken, for dull-coloured ones seldom make nice-looking decorative plants. The variegation is best preserved by using a rather poor sandy soil when repotting them. *Pandanuses* delight in heat and moisture, but a slight amount of shade should be afforded them during the hottest part of the day.

Plunging Plants Outdoors.—By this date most of the bedding plants being planted, time will be found for the removal outdoors, after a careful course of hardening off, of *Salvias*, *Eupatoriums*, zonal *Pelargoniums*, *Cytisus*, *Correas*, *Coronillas*, *Epacrises*, and greenhouse plants generally. It is advisable to plunge these in coal-ashes, so as to economise watering and maintain the roots in a cool medium, and an equable state of moisture. Strong-rooting plants should have a piece of slate placed under the bottom of the pots, and in all cases a sufficient space should be allowed between the plants to permit of due development of growth.

THE FLOWER GARDEN.

By H. WALTERS, Gardener, Eastwell Park, Ashford.

Paul's Carmine Pillar Rose.—For the covering of arches and arbours, forming hedges, or serving as pillars, this is one of the best Roses. It is a luxuriant grower, hardy, and makes good progress in a short time when the soil is of the right kind. The trusses of single flowers are borne in great profusion. The colour, as its name implies, is a very deep carmine, of a tint, which, when the sunshine is on it, has a very vivid effect. The bloom is pretty when still unopened.

Wallflowers, Canterbury Bells, Aquilegias, Foxgloves, Myosotis, and Lilium pendula.—Seeds of these favourite flowers of spring should be sown this month, it being advisable for gardeners in most parts of the country to have strong, bushy plants by the autumn. Such plants start into growth more quickly than weaker ones, and get therefore well-established before winter begins. The best place in which to sow the seeds is a partially shaded border, the seeds being scattered thinly broadcast, thus avoiding the trouble and labour of transplantation into nure-beds. The beds should be trampled lightly and made level and smooth with a fine-toothed rake, before the seeds are sown. After sowing, hack in the coarser seeds with a small rake, but let the fine seeds lay on the surface untouched, beyond a slight patting and smoothing over with a bit of smooth board or the back of a bright spade. Beyond a little thinning where the plants may have been sown too thickly, and hand-weeding, nothing else will be required before planting-out takes place.

General Remarks.—The continued cold weather is proving very injurious to many of the tender plants in the beds; and the leaves are falling from the Limes and Elms in this part of the so-called Garden of England as if we were in the month of October. All recently-planted subjects should be afforded water if the soil has got dry, doing this in the evening in preference to the morning hours. Weeds must be kept under by hand-pulling and hoeing; and on hard gravel walks weed-killer should be used; and loose-shell, spar, granite, and sea-sand walks must be kept clean with the Dutch-hoe and the rake. Lawns will need for the present almost weekly attention in the matter of mowing and cleaning up. The dead blooms should be removed from Pansies and Violas, in order to prolong the flowering of these plants. The ground should be stirred with the hoe or hand-fork around Gladiolus, and each growth secured to a neat stake; Doronicums should be relieved of the spent flowers and stalks. Creepers on walls should be nailed-in as growth proceeds, and if the soil in which they are planted be dry, a heavy application of water should be afforded. If the Roses trained on fences are infested with green-fly, let them be syringed with diluted Tobacco-water, or with Calvert's carbolic-soap at the rate of 3 oz. to 1 gallon of water.

HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener, Belvoir Castle, Grantham.

Peach.—The trees are making rapid growth, and the securing of the necessary shoots, and the removal of those that are superfluous will require attention at short intervals. Lateral growths must be stopped at the first joint reckoned upwards from the base, and at this point flower-buds will often form, which does not occur if the shoot is simply pulled out. Examine these and other wall fruit-trees, and apply insecticides or copious syringings with water if aphides, red-spider, &c., are discovered thereon. When warmer weather at length favours the country, the blister in Peach foliage will gradually disappear; but all badly-curved leaves should now be removed and burnt, as to leave them affords a hiding-place for insects.

The Borders.—In some localities, shallow and light soils will soon be in need of water, and especially those in which are trees this year transplanted, and the borders of south and east walls generally, at such time diluted manure-water should be afforded to those trees that are carrying full crops of fruit. If the borders are caked on the surface, slightly lift the soil with a digging-fork thrust in an inch or two, so as to let the water run in readily.

Late Strawberries.—The beds should be copiously supplied with water during dry weather, but no manure-water should be applied after the fruit shows.

Raspberries, &c.—The plantations will be benefited by having a mulch of strawy litter to keep the rain from splashing the fruit that hangs low down, and to maintain the soil in a moist state. Search well for maggots and caterpillars on Pear and Apple-trees, these creatures being very destructive to the young fruits at this season.

General Remarks.—It is now very necessary to wage war with weeds everywhere, and to stir the ground with the hoe as soon after heavy rain as it is possible to employ the tool readily, thus letting the sun's heat into the soil, and checking evaporation of moisture. All plants of Groundsel, Charlock, Shepherds' Purse, Couch Grass, and Fat Hen (*Chenopodium*), should now be collected and charred, as when merely hoed up and allowed to remain on the ground until the seed becomes fit for germination, another crop of these troublesome plants spring up.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener, Hatfield House, Herts.

The Fig-house.—Pot Figs should, when the first crop of fruits is taken, be thoroughly washed with warm-water applied with a syringe, directing it chiefly and strongly to the under sides of the leaves in order to dislodge red-spider; and should scale be present it must be cleared off the plants with a sponge and soapy-water. To encourage the second crop of Figs, afford the plants a top-dressing of loam and a small quantity of artificial manure. Afford the plants water as often as may be required, and maintain a moist air in the house, and a temperature of about 65° at night, and 80° to 85° by day, closing early in the afternoon, and generally carrying out the methods put into practice with the first crop.

Early Vinery.—After the whole of the crop of Grapes is removed from the vines, afford them a thorough cleaning with warm water applied with the syringe or engine, taking care to direct it powerfully against the leaves, so as to dislodge red-spider if present, but without injuring the former; and this kind of treatment should be repeated at intervals throughout the summer. The Vines, moreover, must not lack water at the roots, but whenever the test-stick shows the soil to be getting dry, afford it water in quantity, be the borders out or inside ones. Do not shorten or remove laterals, but let them alone in order to encourage the growth and extension of the roots. This vinery must be kept fully open night and day, excepting during storms of wind and hail.

Other Vineries.—If Grapes have to last as long as possible after they are ripe, cutting should commence with the ripest, and as soon as each Vine is cleared of its crop, it should receive a cleaning in the manner described above. Grapes to be kept for as long a period of time as possible without shrivelling or decaying must be well ventilated in fine weather, and in wet weather the upper ventilators should be closed, and the heating apparatus made slightly warm. Where Grapes are beginning to colour, and the crop is a full one, manure-water may be afforded the border when it is dry, sulphate of lime at the rate of half an ounce to the gallon of water being likewise applied as a help in colouring the bunches. When Grapes are at this stage, the Vines need careful airing, and on no account should it be stinted in amount, except it be to close the upper lights when it rains. In the afternoon, when taking off the air, let a little space be left at the top and bottom of the vinery, and throughout the night. By means of hot-water pipes maintain the required degree of warmth on dull days, and also at night, and for the purpose of preventing the condensation of moisture on the berries. On these Vines the laterals should be removed frequently, excepting Madresfield Court, whose berries crack if denudation of growths takes place, or the temperature be allowed to get low, or air be not freely afforded. As the process of colouring advances, the damping of the borders and floor may be lessened in amount. The bunches of Grapes after thinning should be occasionally examined for seedless berries, which should always be removed, and a few of the others likewise if crowding appears likely to occur. All late Grapes, whilst cool, dull weather prevails, will be the better for the continual use of the heating apparatus, thus giving firmness to the fruit and foliage, and less liability to scald when the sun does really shine.

THE APIARY.

By EXPERT.

Rendering Wax.—To most persons this part of the bee-keeper's business is troublesome and distasteful, many preferring to burn the refuse combs outright, rather than tackle the work of rendering them into wax. In every well-managed apiary there accumulates during the season a considerable quantity of refuse comb, scraps of foundation, and the pressed empty combs, which, if the apiary is of any size, will amount to considerable dimensions, and in these days of low prices and keen competition nothing connected with the bee-industry should be lost sight of. An ordinary skep of clean combs will produce about half a pound of wax; and when so many now use full sheets of foundation in the frames, nearly that amount in weight of wax can be secured when melted down again. Almost everyone who has rendered wax is agreed that whatever dishes are employed in the work should be kept exclusively for that purpose. As with other advances made of late years in the appliance trade, those for the taking of the wax have come in for a share of attention. For small apiaries, the cottager's wax extractor, costing

about 3s., suits admirably. It is made in two separate parts; the upper dish has a perforated bottom, which holds the refuse combs. This dish fits over the under one, partly filled with water. As the water boils, the steam ascends up through the combs and melts the wax, which falls into the water in the lower dish, and when cool it can be lifted off in one cake. A larger extractor on the same principle, but with several improvements added, is also in use, and adapted for larger apiaries. Where none of these can be had, the every-day washing-pot or boiler may be utilised for the purpose of wax-rendering, thus:—First, press the combs firmly together, and tie into any coarse bag (an ordinary sugar-bag will do). Immerse this bag into the pot of warm water, so that by some means it is held down beneath the surface; as the water boils the wax will ooze out of the bag, and float on the top, and when cool may be lifted off in one cake, leaving all the refuse inside the bag. A second melting and straining through muslin into any dish or mould will make it fit for sale. About twelve years ago I had made for my own use a wax extractor, which, though plain in structure, I have found very useful. It is a square dish, 13 inches by 13 inches by 18 inches deep inside, made of strong steel-plate, tinned, and having a handle and spout; a strong perforated metal lid is made to slide down the inside of the dish to any desired depth, and held there by means of a screw. Into this dish the combs are pressed firmly up to 3 inches or so from the top, and the lid brought close down to them. Water is now added till it rises above the lid, and to every four gallons of water a dessert spoonful of sulphuric acid (vitriol) is added. This greatly enriches the colour of the wax. As the water boils the wax is poured off into cold water, and each boiling yields from 4 to 5 lb. of wax. When all the combs are operated on, the wax is then collected and tied into a clean-washed flour-bag, and reboiled in clean water (soft water is best), with the vitriol added as before. When melted, the wax is poured into moulds and allowed to cool slowly; by placing over each dish a piece of paper to keep in the heat, this prevents the cakes from cracking. Selected pieces of white comb and the cappings gathered from the honey extractor-work, should be carefully preserved, and when these are collected in any quantity, they will yield to the bee-keeper a sample of the finest wax fit to win a prize in any competition.

VARIORUM.

COLD STORAGE OF APPLES AND OTHER FRUIT.—In 1895 the Apple crop, says the *Journal of Greengrocery, Fruit, and Flowers*, for May 28, was one of the largest ever known in this country, yet practically the whole of it was finished before Christmas, not because the whole of the fruit was wanted by that time, but for the simple reason that growers glutted the markets with it, and got in return no more than they could expect—viz., very low and unremunerative prices. At the present time there is every prospect of there being just such another crop as that of 1895. Before the fruit comes along, we should like to see home growers making a little preparation for it in the shape of cold or other means of storage, for it is only by doing this and studying the markets that the best prices are to be realised. Turn to our pages in 1895, and it will be seen that good Apples realised from 1s. 6d. to 2s. 6d. per bushel, and keeping sorts, too; while early in 1896 foreign produce fetched from 10s. to 15s. per bushel. If cold storage was adopted in England in the same way as is done abroad, many kinds of produce could be doubled in value, and less would be heard of the grumble from the grower, when he is blessed with a good harvest, that the price is so bad that the fruit does not pay to send to market.

THE TIMBER SUPPLY OF THE WORLD.—“In spite of the enormous consumption of timber,” says the *Echo*, “there still remain on the face of the globe immense areas of virgin forest. The forests of Quebec and Montreal cover a tract of country a million and a half square miles in area; the Amazon valley forests have three times that area, and those of central Africa are ten times as large. Then there are the unexplored primeval forests of Siberia, where for hundreds of miles the Pine-trees grow so thickly together as to be practically impassable.”

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the **PUBLISHER**. Letters for Publication, as well as specimens and plants for naming, should be addressed to the **EDITOR, 41, Wellington Street, Covent Garden, London**. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	JUNE 20	Royal Agricultural Show at Birmingham.
WEDNESDAY,	JUNE 22	Royal Jersey Horticultural Society's Show.
THURSDAY,	JUNE 23	National Rose Society's Exhibition at Bath, in conjunction with Bath Rose and Begonia Show, Ryde Rose Show.
FRIDAY,	JUNE 24	Royal Botanic Society (Lecture).
SATURDAY,	JUNE 25	Windsor and Eton Rose and Horticultural Show.
SALE.		
FRIDAY,	JUNE 24	Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—61° 7'.

ACTUAL TEMPERATURES:—

LONDON.—JUNE 15 (6 P.M.): Max., 61°; Min., 48°.

PROVINCES.—JUNE 15 (6 P.M.): Max., 68°, York; Min., 51°, Sumburgh Head.

Dull, chilly; ungenial.

The Silva of North America. THE eleventh volume of Prof. SARGENT'S monumental work on the trees of the United States has recently been issued. We have often had occasion to comment on the scope of this book, and on the masterly way in which it is carried out, so that we may on this occasion confine ourselves to a few remarks on the contents of the present volume, which is devoted exclusively to the genus *Pinus*, of which thirty-four species are described and figured. Twenty-one species inhabit the Western States of America, thirteen the Eastern States, so that even without reckoning the Mexican and Central American species, which are at present ill-defined, the temperate and northern parts of the American continent give a home to half the known species. In Mexico and the adjacent States there are several species which require study by a trained observer in the forests themselves. Great confusion and provoking obstacles have been created by ROEHL and other collectors, who, ignoring the great amount of variation which occurs naturally, have given specific names to scores of plants (actually ninety-two), which it is now difficult, if not impossible, to identify with any feeling of confidence. These Mexican Pines are, for the most part, tender and unsuitable for growth in this country. When grown under glass, their appearance is correspondingly modified. Five species are found in Central Europe and in the Mediterranean region. One, our common Scotch Pine, is undoubtedly an aboriginal native of this country, and though

now generally planted, its remains are found widely dispersed in relatively recent formations, when, certainly, planting by human agency was not thought of. The Himalayas are covered in places with Pines of two or three species, and others are found in the mountains of Central China. From this district, no doubt, further introductions may be expected. The Japanese species made known by the introductions of VON SIEBOLD, JOHN GOULD VEITCH, MARIES, and others have been largely described and illustrated in these columns, and in the subsequently published monograph of Dr. MAYR. Whilst we do not expect to see many more species from Japan, there are very many varieties which are not yet introduced into this country, though they would be valuable accessions to the gardens of the curious. Many of these are figured in Dr. MAYR'S *Monograph of Japanese Abietineæ*, previously alluded to, and one formed an item in Messrs. SANDER & Co.'s remarkable group of new plants at Ghent lately. The Canary Islands have one endemic species, Burma and the Philippines one each, and one species even crosses the Equator, and is found in Sumatra.

Professor SARGENT deals also with the species of the genus, as affording timber or resinous products; but upon these particulars we do not here propose to dwell. As ornamental-plants, the species of *Pinus* cannot be said to rival the Silver Firs (*Abies*), and are apt to become scraggy as they grow older. The noble forms of the young trees, the lovely tints of the expanding shoots and flowers, and the extraordinary interest attaching to the cones—indeed, to the trees generally—will, however, always commend them to the connoisseur and lover of plants.

As to the arrangement of the species, Professor SARGENT has followed almost precisely that given by ENGELMANN, in the *Transactions of the Academy of St. Louis* in 1880, reprinted in our columns on July 24 of that year. That arrangement was noteworthy for the attempt therein made to utilise for systematic purposes, more fully than had been previously done, the arrangement of the resin canals in the leaves. Sometimes these canals are close under the skin of the leaf (subepidermal), sometimes in the centre of the leaf-tissue (parenchymatous), and in other cases they are, as it is called, "internal," that is, in close proximity to the central bundle and pericycle. These "characters," when they occur, are very valuable for discriminative purposes, but unhappily, as with most other "characters," they occasionally fail us, and even when they do occur, they are apt to be variable.

Characters not alluded to in the conspectus may be found in the nature of the leaf-sheath and the number of its constituents, in the variations of the involucre scales surrounding the male flowers (which are figured in many cases in the plates of the volume before us), in the leafy or leafless condition of the young shoots, and other points to which it is not needful here to allude.

The nomenclature adopted is not always in accordance with custom or law, but this is a subject upon which grave differences of opinion exist, so that any discussion upon it here would not only be tedious but unavailing. We may therefore note the principal changes made without here expressing any opinion upon the propriety of the change. Thus, *Pinus Parryana* (1862) of Engelmann (not of Gordon), and adopted by most subsequent writers, figures here as *P. quadrifolia*, Sudworth (1897). *Pinus*

insignis is referred to *P. radiata*, and a difficulty is thus solved. *Pinus tuberculata* of Gordon becomes *P. attenuata* of Lemmon. The Pine so generally known as *inops* becomes *P. virginiana*, owing to the adoption of MILLER'S name, which, as in many similar cases, had been passed over by our forefathers. Something like a gordian knot has been cut by the adoption of *P. echinata* of MILLER as the true name for the one Pine known as *P. mitis* and also as *P. variabilis*; the last-named has been a special puzzle, and it is a relief to have it thus settled, if not unravelled. Less satisfaction will be experienced at the appearance of the Pine universally known as *Pinus Banksiana* under the name of *P. divaricata*. Lastly, the *Pinus cubensis* of GRISEBACH is registered as *P. heterophylla*, the first mention of the plant apparently having been not even under a specific but a varietal name, *P. Teda* var. *heterophylla*! To alter an established name for such a reason looks heterodox indeed.

Of the American species described in the book before us, the Weymouth Pine, *P. Strobus*, is the one best known here, and we need go no further than Kew to see fine specimens of considerable age. It was introduced to Longleat by Lord WEYMOUTH, and thence it has been widely distributed. Its western representative, *P. monticola*, a more recent introduction, has also been largely planted, but does not seem likely to possess any superiority over the Weymouth. *P. Lambertiana*, a discovery of DOUGLAS', and described by him in 1827, thrives in this country, but we have no record of its value for timber. The romantic history of this tree is given in DOUGLAS' diary, printed in the second volume of the *Companion to the Botanical Magazine*, ten or more years after it was originally written. It appears that no specimens of the magnificent dimensions mentioned by DOUGLAS are now in existence. Concerning this Pine we make the following extract:—

"In most Pine-trees there is a sameness of expression, which to most people is apt to become monotonous, for the typical spiry form, however beautiful, affords but little scope for appreciable individual character. The Sugar-Pine is as free from conventionalities of form and motion as any Oak. No two are alike, even to the most inattentive observer; and notwithstanding they are ever tossing out their immense arms in what might seem most extravagant gestures, there is a majesty and repose about them that precludes all possibility of the grotesque or even picturesque in their general expression" (Muir, *Mountains of California*).

P. divaricata (*Banksiana*) might be planted advantageously on barren sand flats near the sea, but we are not aware that this has been done. *Pinus contorta* and *P. radiata* (*insignis*) are also good sea coast plants. We must not, however, suffer ourselves to be led off by the suggestions that each species offers; it must suffice to add that we have here a first-class monograph, written by one specially qualified and specially endowed for the purpose, and that to the record of his own observations he has added what amounts to an encyclopedia of interesting notes and references.

"JOURNAL OF THE KEW GUILD."—The Kew Guild, as many of our readers know, is an "association of Kew gardeners, &c., past and present." The fifth annual report is given in the number of the Guild Journal recently issued, and as far as the prosperity of the undertaking is concerned, the motto "Floreat Kew" seems very appropriate. The

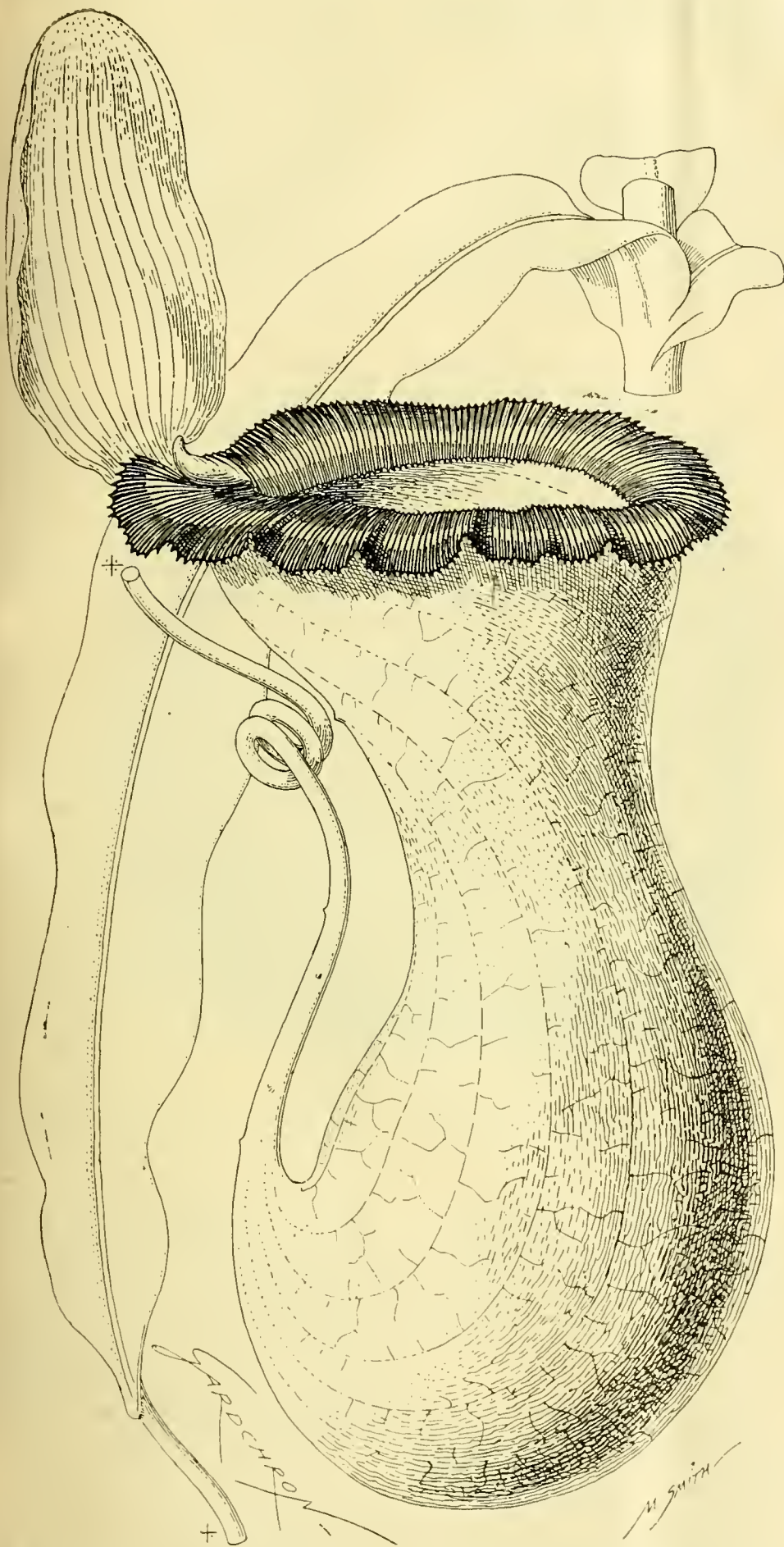


FIG. 143.—*NEPENTHES VENTRICOSA*: A NEW PITCHER-PLANT FROM THE PHILIPPINES.
(SEE P. 380.)

finances are in a satisfactory condition; the meetings are well attended, the Journal is appreciated. The number before us has, as frontispiece, an excellent portrait of Prof. D. OLIVER, whose work at Kew dates from 1858. The brief memoir appended in the Journal gives a good summary of his life's labours. Another portrait herein given is that of Miss GULVIN who left Kew in January, 1897, to take charge of the garden of J. BROODEN, Esq., Iscoed, Ferryside, S. Wales. We read that Miss GULVIN is "the first woman to take sole charge of a garden on exactly the same terms as a man. Her success has been a source of satisfaction to all who know the nature of her undertaking, and, clever though she is, many will be surprised that one of her sex so young, should have conquered all the difficulties of a first situation which evidently was not of the apple-pie order." The charge includes four vineries, orchard-house, and Cucumber frames, with flower and fruit gardens, and five acres of kitchen-garden. Miss GULVIN writes "I have a 'lady gardener' as an assistant, and four men besides. I have already had the pleasure of winning a first-prize at a local show for vegetables; and I think I may take it that I am giving satisfaction to my employer from his having raised my salary £10 a year. Our garden is a source of interest to the craft, and we have many callers, evidently curious to know what a woman gardener can do. My staff is now quite contented to be controlled by one of the 'weaker' sex. I think that when men see that our intentions are serious, and that we are not afraid to work, they respect our efforts to find employment outside the very restricted boundary within which till recently woman's work was confined. Altogether my situation is a very agreeable one." In the Guild Journal are other notes and letters from "Kewites;" hints on "Training for India," by Mr. G. M. WOODROW; report of the opening address given by Mr. MORRIS; two photos taken and lent by Mrs. S. GOLDNEY, who has lately issued a Kew Album; memorial notices of several deceased members, and other jottings.

THE CALCUTTA BOTANICAL GARDENS.—It is notified that Surgeon-Lieutenant GAGE, of the Indian Medical Service, has been selected to fill the post of Curator of the Herbarium, Royal Botanical Gardens, Calcutta, in place of Dr. DAVID PRAIR, who has succeeded Sir GEORGE KING as Superintendent of the gardens. *Indian Gardening*.

A NEW GREENHOUSE FRUIT-TREE.—In a recent number of the *Revue Horticole*, M. ED. ANDRÉ figures a remarkable Myrtaceous plant, *Feijoa Sellowiana*, introduced by him from La Plata. It is a shrub with oblong obtuse leaves, and axillary pink flowers, each measuring about 3—4 cent. across. The four sepals are reflexed, whilst the four petals are larger, and each one hooded, white externally, pink within. The fruit is oblong obtuse, tubercled, about 6 cent. long, 5 cent. lat., highly fragrant, and agreeable to the taste. It is thought that it will prove a valuable introduction into the gardens of Provence, but the fate of *Eugenia Ugni* does not lead us to expect to see it in the markets.

THE DUKE OF PORTLAND, Master of the Horse, who underwent a rather serious operation in London some days ago, which prevented him from presiding at the dinner of the Gardeners' Benevolent Institution, has been able to travel to Welbeck Abbey, and the latest report states that he is proceeding satisfactorily.

MESSRS. SUTTON & SONS' OUTING.—A numerous party, consisting of the *employés* of the famous seed firm of Messrs. SUTTON & SONS, of Reading, accompanied by their wives, &c., took part in the usual annual excursion on Monday, the 6th inst. The party, numbering about 700 persons, was accommodated in a very fine special train arranged by Mr. WEAVER, the G.W.R. station-master at Reading. The destination was Southampton, whence the party was conveyed by the steamers *Solent Queen* and *Her Majesty*, the former to Ryde, Sandown, Shanklin, and Ventnor; and the latter to Cowes, Totland Bay, and Ryde. The QUEEN had graciously consented to permit members of the party

to visit Osborne, and the favour was gladly taken advantage of by the bulk of the party. Other attractions arranged for by the firm, included the inspection of the new docks and warehouses at Southampton, the S.W.R. steamers, and the South African liners *Moor* and *Cockcha*, then lying in the docks. The party, gratified with what they had seen, left Southampton at 8 P.M., reaching Reading in two hours. All the partners in the firm, and such members of their families as were able to do so, accompanied the party, and added much by their courtesy to the general enjoyment. In addition to providing train, steamers, &c., free, the firm generously provided each guest with a sum of money ample to cover the cost of refreshments and incidental expenses of the day.

"BOTANICAL MAGAZINE."—In the present number (June) the plates are supplied which were omitted from the May number in consequence of a fire on the premises of the lithographer. The plants figured are:—

Stephanandra Tanokor, t. 7593, a Spiræa-like shrub, the leaves of which are richly coloured in autumn, and with terminal panicles of small greenish flowers. It is a native of Japan.

Symphyanthra Wanneri, a tall-growing biennial Campanula, with narrow, remotely- serrate, hairy leaves, and terminal panicles of large bell-shaped, purplish-blue flowers; t. 7594.

Kalanchoe flammca, a succulent Crassulad, from Somali-land, with obovate, stalked leaves, and numerous orange coloured flowers in terminal panicked cymes. Kew; t. 7595.

Armeria caspitosa, a dwarf, tufted species from Spain, with very short, linear leaves, and stalked heads of pale rosy-lilac flowers; t. 7596.

Crinum Woodrowi, Baker, a new species, belonging to the section Platyastr, with broad, sub-obovate leaves and heads of large white flowers, with long, slender tubes, scarcely so long as the narrow perianth-segments. It is a native of Central India, and was sent home by Mr. Woodrow, the Professor of Botany at the College of Science, Poona; t. 7597.

Morisia hypogaea, Gay, a pretty little Crucifer from Corsica, which may be seen annually in the alpine-house at Kew. Structurally it is very interesting, and remarkable for its habit of bending down its flower-stalks, and burying them in the soil to ripen the seed. The plant grows in little tufts of linear pinnatisect leaves, from among which the yellow flowers make their appearance; t. 7598.

Celastrus articulatus, Thunberg, a rambling shrub, remarkable for the orange-coloured aril by which the seeds are invested. It would probably thrive by the sea-side. See *Gardeners' Chronicle*, 1898, p. 28, fig. 1; t. 7599.

Philadelphus mexicanus, Schlechtendal, a species or variety hardly distinguishable from *P. grandiflorus*, except in its fragrant solitary nodding flowers, and in the plant being less hardy than the common one; t. 7600.

Orchis monophylla, Collett and Hemsley.—A species from the Shan Hills of Burma, with leaves thickly spotted with brown. The flowers resemble those of our common *maculata*. The species was originally referred to *Habenaria*, but in the fresh specimens Mr. Rolfe was enabled to discover the pouches in which the glands of the pollinia are placed; t. 7601.

AGRICULTURAL STATIONS.—According to some statistics given in the *Botanical Gazette* there are in the United States fifty-one State Experiment-stations, Connecticut and New York having two each. On the whole, there are about 50 trained botanists scattered over the land, acting either as botanists, or as entomologists, bacteriologists, mycologists, &c. Up to recently we had none, but the County Councils have in many cases accomplished that, the necessity for which we so often pointed out.

DATE PALMS IN BUSSORAH.—The *New Bulletin* gives some figures which will astonish those whose idea of the Date Palm is that of one bending

over a well, or perchance a group of twenty in an oasis. We ought it seems to think of millions of acres along the banks of a magnificent river covered with countless Date Palms. The Date season begins in the early or middle part of September, and lasts six weeks.

"THE CULTURE OF VEGETABLES FOR PRIZES, PLEASURE, AND PROFIT."—By E. KEMP TOOGOOD (Toogood & Sons, Southampton). As the result of "extended work in this direction for nearly a century," this book can hardly fail to be reliable. The author begins with the soil, and how it should be worked, dividing the rest of his work into sections:—Rotation of crops, Garden pests, Manures, Forcing, Vegetable culture, and Monthly sowings and plantings. The whole is so well classified and put together that the desired information can be found in a moment. The volume is small enough for the pocket or bag, so will serve for occasional reference in the garden as well as for more deliberate study indoors.

"TOOGOOD'S TREATISE ON PASTURES AND PASTURE PLANTS."—(MACMILLAN & CO., London). The subject-matter of Mr. WILLIAM TOOGOOD's book will be known from the title. The contents are the result of long personal experience, aided by the study of the works of such authorities as Mr. W. CARRUTHERS, Sir JOHN BENNET LAWES, and others. Chapters, subdivided into sections, deal with the subject in the following sequence:—1, Cultural preparations; 2, Our pasture grasses; 3, Leguminous pasture plants; 4, Selection of pasture plants; 5, Buying pasture seeds; 6, Testing pasture seeds at home; 7, Sowing pasture seeds; 8, Care of new pastures; and, 9, Care of established pastures. We must not omit to mention the illustrations—some thirty five in number—diffused through and appropriate to the text.

FLORICULTURE IN EAST ANGLIA.—As a proof of the increase of this attractive and remunerative industry, one grower, Mr. E. S. OLDHAM, Wisbech St. Mary, has, during the last three weeks, sent off 1,820,000 blooms of double flowered White Narcissus, weighing upwards of 20 tons, to Covent Garden and various provincial markets. The largest number sent off in one day (June 2) was 248,256, of the weight of 2 tons 17 cwt.

BAMBOOS AT THE TEMPLE.—Mr. GAUNTLETT, of the Green Lane Nurseries, Redruth, points out in relation to our notice of his exhibit, that he was showing the numbers of varieties of Bamboo (taking the word in a broad sense) now being grown in England, and some of which hitherto unknown here were introduced by him alone. He was not exhibiting Bamboos in growth, as some of the plants were not in foliage. Neither were the plants grown in Cornwall, but recently-imported plants. Mr. GAUNTLETT says that Bamboos in general do better in the Midlands than in Cornwall, where the summer is not hot enough to ripen the canes properly.

NYPHÆA FRÆBELI ×.—Last autumn when at Zurich we had the opportunity of seeing a bloom of this lovely variety. It was probably the last bloom, and it was out of condition. Now Mr. FRÆBEL kindly sends us a bloom which, in spite of its long journey, shows the rich crimson petals, and the orange-stamens so beautifully, that we may rank it as among the highest, if not the highest coloured varieties.

THE WORSHIPFUL COMPANY OF GARDENERS.—Sir W. FARMER has been elected Master of this Company, and Mr. PHILIP CROWLEY, Chairman of the Fruit Committee of the Royal Horticultural Society, and Mr. RICHARD CLOUT, Upper Renter and Warden respectively.

ROYAL HORTICULTURAL SOCIETY'S ROSE SHOW: CHANGE OF DATE.—Rev. W. WILKS, Secretary, asks us to announce that the Council have changed the date of the Royal Horticultural Society's Rose Show, advertised on p. 59 of the Arrangements

for 1898, from June 28 to July 12. This alteration is necessitated by the abnormally backward state of the Roses this year.

MR. GLADSTONE'S FAVOURITE FLOWER.—Since the funeral at Westminster Abbey of Mr. GLADSTONE, Mr. ELLIS LEVER has made a suggestion that on every May 19, the anniversary of Mr. GLADSTONE's death, the Rose should be worn. The late statesman had a love of flowers, especially of the Rose, and during the summer months was accustomed to wear one in his coat. On seeing Mr. LEVER's suggestion, the Dean of ROCHESTER wrote to Mr. LEVER as follows:—"You will be pleased to read the following extract from a letter dated at 78, Harley Street, March 28, 1877, addressed to the Rev. Canon HOLE:—"The Rose is, in addition to other merits, an English flower, almost an English institution, and I am glad you have made it the subject of special study and commemoration.—I remain, dear sir, yours faithfully, W. E. GLADSTONE."

THE NEWCASTLE-UPON-TYNE FLOWER SHOW.—As already announced, this show will be held in conjunction with the Northumberland Agricultural Show in the Recreation Ground on Wednesday, Thursday, and Friday, July 13, 14, and 15. This will be the largest show ever held in the North of England. A large deputation from the Council of the Royal Horticultural Society will travel from London to visit the show and make awards. Several prominent nurserymen from different parts of England have made application for space; the whole show promises to be a great success.

PUBLICATIONS RECEIVED.—*Annual Report, List of Members, and Schedules of Prizes for 1898*, National Rose Society.—*Official Catalogue of the National Dahlia Society*. The classified lists of various sorts of Dahlias should prove useful to amateurs, while those who intend showing at either of the Society's exhibitions should note that some of the regulations have been altered since last March.—*The Canadian Horticulturist* (Ontario), May. This opens with an article on Strawberry tests at Guelph (illustrated), and contains various shorter papers on gardening topics.—*Reports of the Botanical Department of Indiana Agricultural Experiment Station*, by J. C. ARTHUR, for 1896 and for 1897 are before us. The progress made has been gratifying, one of the most important results obtained being the introduction of the new fungicide, known in the market as formalin, which proves to be a satisfactory substitute for corrosive sublimate in the prevention of Potato-scab, while possessing the great advantage of lacking poisonous properties.—*The Grain Smuts*, how they are caused, and how to prevent them, by W. T. SWINGLE.—*Farmers' Bulletin*, No. 75, U.S. Department of Agriculture.—*The Germ of Pear Blight*, by LILLIAN SNYDER (reprinted from *Proceedings of the Academy of Science*, 1897).—*The Botanical Magazine* (Tokyo), April 20, contains papers by J. MATSUMURA on Formosan Oleaceæ, Melamporæ of Japan; List of plants collected in Mount Togakusui (concluded); and by T. MAKINO, *Plantæ Japonenses novæ vel minus cognitæ*. There are also several articles in Japanese, and some miscellaneous information.—*Nature Notes*, June, 1898.—*Die Natürlichen Pflanzenfamilien* (Leipzig), 11st Lieferung.—*Dictionnaire Pratique d'Horticulture et de Jardinage*, livraisons 70 and 71, attaining to the commencement of Trillium.—*Bulletin de la Société Française d'Horticulture de Londres*, 1897 (Bedford Street, Strand). This opens with a portrait and brief memoir of Mr. C. Harman Payne, and contains also a Report (satisfactory) of the Society.

NEPENTHES VENTRICOSA, BLANCO.*

Two Philippine species of *Nepenthes*, *ventricosa* and *alata*, were described by Blanco in 1837, and have been well known from dried specimens ever

* *Nepenthes ventricosa*, Blanco, *Fl. Filip.*, ed. i., p. 807; *Hook. f. in DC. Prodr.*, xvii, p. 100.

since the exploration of that archipelago by Cuming, though nothing has been heard of them in cultivation. A short time ago, however, a plant which had been obtained from the Philippines was sent to Kew by Mr. C. Ford, Superintendent of the Hong-Kong Botanic Garden, and on comparison proves to be *N. ventricosa*, Blanco. It is a very distinct and striking plant, as will be apparent from the annexed figure, drawn by Miss Smith (fig. 143, p. 379). It is apparently more nearly allied to *N. Burkei*, Mast., than to any other, special points of resemblance being the total absence of wings from the pitcher, and the undulated peristome; yet it differs in shape, in the nearly truncate, not oblique, mouth, and in colour, as may be seen by a comparison of the figures. This latter species was originally described as a native of Borneo, but a note by Mr. Veitch in his recent paper

which the size has been taken from dried pitchers in M. Lohr's collection, which, of course, were larger when alive. These dried specimens give an idea of what the plant will be like when well-grown, for one branch carries eight splendid pitchers, and others are but little less luxuriant. According to the *Appendix* previously mentioned, it is found in several localities in North Luzon.

It is too early yet to speak of its future as a garden plant, but there is no reason why it should not prove as amenable to cultivation as most of its allies, and owing to its novel shape it should prove a great acquisition, both for its own sake and for hybridisation purposes. We may hope that *N. alata*, Blanco, may yet be added to the list of those in cultivation. Now that a house has been specially devoted to them at Kew, it would be a very interesting matter to see

reproduction from this will be found at fig. 144. At the Temple Show a cultural commendation was awarded to Mushrooms from the same establishment, when clusters of small and large specimens were shown, together with a quantity of spawn. We thought, therefore, that something interesting would probably be revealed by a visit to Mr. Addey's gardens in the Ealing Rd., Brentford, and although the best of the Mushroom season was over, it was so. The house where the greater quantity of Mushrooms is grown is some 150 feet long and 50 feet wide, being 17 feet high to the ridge. There are twenty-six flat beds in this house, thirteen on either side, and on the wide path that runs through the centre are made two ridges which run the length of the house. Only the ground level in this rather tall house is thus utilised, but it used to be fitted with several tiers of shelves, since abandoned as unsuitable. The use of wooden shelves Mr. Addey condemns with considerable emphasis. No Mushrooms are, however, grown in this building during the summer, but the beds will be made up and spawned about September. The rest of the houses are low span-roofed temporary-looking structures, though they are not so in reality. The roofs are of galvanised iron, but they are completely hidden by a covering of litter, and even the doorway is smothered up by similar material, there being a man-hole at the opposite end opening into the big building. It must not be supposed, though, that there is any lack of ventilation, just the opposite condition obtains. The lighted candle we carried in our hands was all but extinguished by the brisk circulation of air. This led Mr. Addey to remark that sufficient means of ventilation was one of the primary necessities in Mushroom-growing. "There must be side and top ventilation."

In one of such houses the crop was becoming exhausted, at any rate to a degree that after gathering 24 pecks from the beds, as was done on the day we were there, it was possible to compute the yield this house had given, and by measuring the extent of the beds, the crop was reduced to so much per square yard. The beds, of course, run the length of the house, on either side of the central, curiously narrow path; together they equalled a bed 57 feet long and 15 feet wide. Two hundred pecks of Mushrooms of 6 lb. each have been gathered, consequently a crop of about 12½ lb. per square yard. This is, undoubtedly, a very large return, and larger than necessary to make it a paying crop; whether any of our readers have had even greater yields, we cannot say. A similar house was inspected, in which the crop was as yet scarcely past its best, and the yield could not be accurately gauged; but as a display of growing Mushrooms, the sight was a memorable one. We may say here, that during the early summer such houses as we have described are preferred to out-of-door ridges; but there were the ordinary two-faced ridges outside, nevertheless, and good, in fact, abundant crops of Mushrooms.

Mr. Addey has been growing Mushrooms for market for nearly twenty years, and during the winter season he gathers about three-quarters of a ton each week. He has made a great number of experiments in matters of detail connected therewith, and he now declares that he has reduced the cultivation of them to a certainty. That is, he has made them a "certain" crop, and never expects, and seldom meets with even comparative failure. If this can be done in such a crop as that of Mushrooms, it must be exceedingly satisfactory to the cultivator. Of course, there have been failures years ago arising from the using of peat-manure, in conjunction with wooden shelves, resulting in an insect-pest that ruined the crop, and rendered the house unfit for further Mushroom-culture for two years; also arising from the manure being in an unsuitable condition when spawned. "But the details have been mastered since then," said Mr. Addey. We could not help thinking that Mr. Addey was more successful than some of his *confrères*, and we give the following hints as coming from his practice, though we are afraid he did not disclose all the little details of practice that he employs. First then, see that the manure is good,

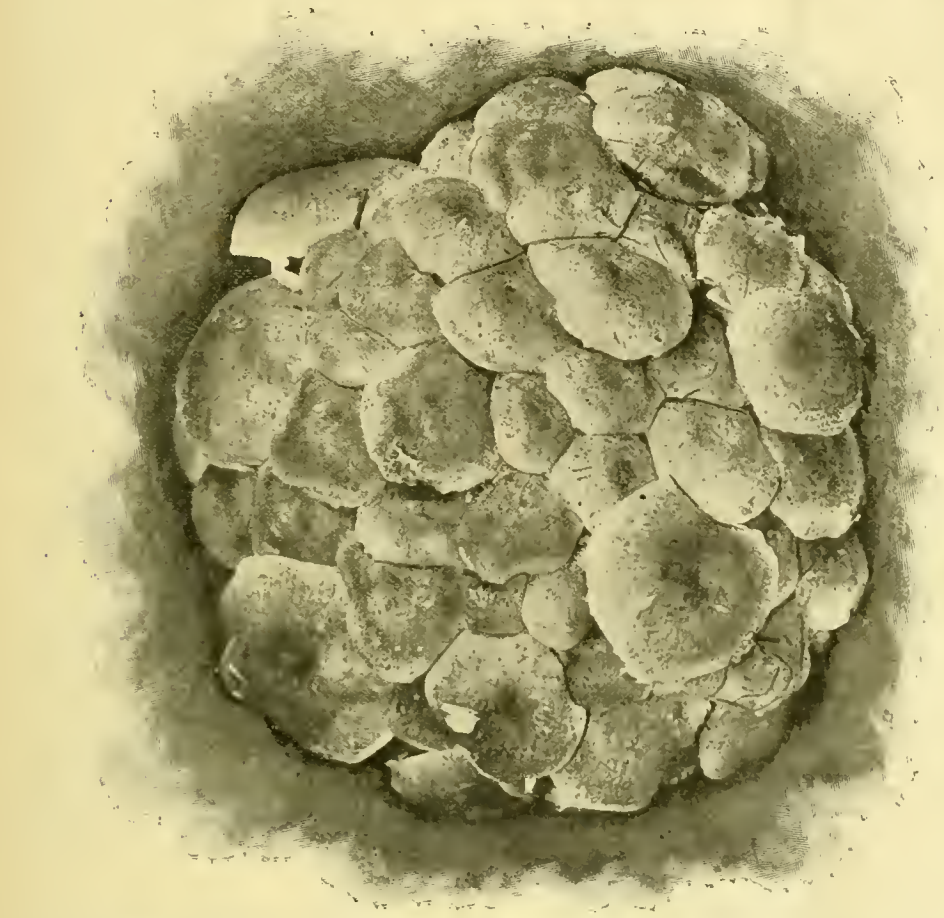


FIG. 144.—CLUSTER OF MUSHROOMS, 5 LB. 2 OZ. IN WEIGHT, AND CONTAINING 104 MUSHROOMS.
(See article on "Mushroom Cultivation.")

(*Journ. Roy. Hort. Soc.*, xxi., p. 237), shows that it also came from the Philippines.

Mr. Veitch remarks:—"The late David Burke collected plants and seeds of two species in the Philippine Islands, one of which, a very variable but decidedly beautiful one, we are distributing under his name. Whether these species are the same as those detected by Blanco fifty years earlier is a question yet to be decided." It certainly appears different; and it may be remarked here that Blanco mentioned a third species from the Island of Cebu; also that five Philippine species are enumerated in the *Appendix* to the third edition of Blanco's work, which appeared some fifteen years ago.

To return, however, to our figure, we have to note that the pitchers are green, with the peristome rosy-red, forming a very decided contrast, though whether the colour is fully developed at present is a little uncertain, for those now on the plant have not been formed under the best conditions, and have not reached their maximum development, owing to

as many as possible of the species cultivated side by side. Nineteen were mentioned as growing there in a recent note in the *Kew Bulletin*, not to mention hybrids, and it is an interesting circumstance that a striking novelty has been so quickly added to the list. *R. A. Rolfe*.

MARKET GARDENING.

"CLUSTER" MUSHROOMS.

NEXT to Mr. Featherby's stall in Covent Garden Market, where his famous Kentish-grown Grapes and Peaches are sold, is the stand belonging to Mr. Robt. E. Addey, of Brentford, one of the most successful growers of Mushrooms for market supply. Mr. Addey some time ago brought to this office an enormous cluster of Mushrooms, weighing 5 lb. 2 oz., and including 104 Mushrooms. A photograph was taken of this cluster by our engraver, Mr. Smith, and a

and where straw has been used; above everything see that it is not spoiled before the spawn is inserted. It is needful to bring it into a sweet condition, and to know that it will not heat afterwards to a greater degree than will be good. But in doing this, said Mr. Addey, most growers ruin the manure as a growing medium for the fungus. It is turned too many times, and the loss of nitrogen (ammonia) and moisture incurred is extravagant. The Mushroom is composed in a large measure of these two elements, and the crop obtained from the beds is almost always less than it would have been had there been more moisture in the manure at the time of spawning. This lost moisture can never be satisfactorily supplied afterwards. When making your beds the manure should not be so wet that when squeezed in the hand water will run away from it, but it should be sufficiently so to make it bind together. Mr. Addey turns his manure once or twice, then puts it up into rough ridges (do not lay it thinly over the ground as you would fruit that it is desired to keep), and covers it with litter for a few days.

The spawn-bricks are broken into six pieces, and these are not buried deeply in the manure, but placed so that they are exactly level with the surface of it, and covered only by the surfacing of soil, which should not be beaten to such a degree as if the object were to make it airtight. If the spawn be broken much smaller and the bed rises a little more than it should do, the spawn will perish, but a larger piece would probably only suffer on the exterior. When the bed has been made and before spawning, it should rise to 120° or 130°, possibly to 140°, but before it is spawned it should drop to 70° or 75° if during summer or for inside beds, whilst for out-of-door ridges in winter it may be spawned at 80°. Nothing should be left to chance. Mr. Addey does not use the ordinary plunging thermometer, nor yet draw a stick from the bed to ascertain its warmth, but he uses Dr. Forbes' glass thermometers, and these are exceedingly sensitive. Of the necessity for proper ventilation we have already spoken. There is one characteristic of Mr. Addey's system of cultivation that needs special mention. It is that of "cluster" Mushrooms in the manner of that illustrated, but generally, of course, much smaller in size.

"To what do you attribute the production of these clusters?" we enquired. "To the strong, vigorous quality of the spawn used, and the condition of the manure at the time of spawning being just that required." "What advantages have the clusters?" "They prove that the spawn has come away; that it has not run about the bed; there is a heavier crop, and it is not so long about as when clusters are absent from a bed."

This is Mr. Addey's system, or as much of it as we could induce him to disclose. For many years past as much as 1500 bushels of spawn have been used each season. He now proposes to manufacture spawn for sale, as well as for his own consumption. During summer the spawn-making is carried out, and we observed hundreds of bushels about the place in various stages of development. This spawn is to be known as "Virgin-Track," and considerable emphasis is laid upon the disadvantages resulting from spawn-bricks which have been "tracked" with spawn from other bricks instead of virgin spawn from manure, which Mr. Addey describes as a species of in-breeding.

When will the present system of Mushroom cultivation be succeeded by "pure culture," such as is practised in the laboratory? When once this becomes practicable, and the actual spores are sown on glass or other shelves, and fed with chemical solutions, Mushroom cultivation will be a very different matter from what it is to-day, and the attendant circumstances less disagreeable to the fastidious and too enquiring mind of many persons who now eat the produce with a certain degree of timidity. P.

HOME CORRESPONDENCE.

MICROBES IN WATER.—Your correspondent, "W. J. Fife," in his article on "Microbes in Water, and the Damping-off of Cauliflowers and Stocks," p. 366, seems to have taken (like many others) quite

a detrimental view of these minute organisms, and their relations to plant-life. I myself think there is no need whatever to observe them in this light, and that, far from being detrimental, they are absolutely essential to the growth of plants. It seems foolish, too, to suppose, that the fewer microbes there are in the water given the plants, the less will be the damping-off. Now, it is well known that the soil itself contains these organisms, and that they are necessary to bring about nitrification; in fact, some agricultural scientists assert that it is really the bacteria which act as the active transport agency between the plant-food and the plant-root. Far better would it be, I think, to look to the fungi for a solution, as it is known that any damp, cold, or stagnant position may be the breeding-place of fungus-spores, and it is very probable that the contact of cold water with the organic matter in the soil will produce a fungus which causes damping-off. *Sidney A. Stein.* [There are microbes and—microbes. ED.]

CARNATIONS, MANURING, AND WIREWORMS.—We have found out during 1897 two things in connection with the culture of the Carnation, which I think may be of service to your readers. The first is a method of satisfying the voracious appetite of the plant without producing the evil effects of indigestion; the second, a means of protecting layers from the wireworm. Everyone who has grown Carnations must know the difficulty of using manure sufficiently "green" and rank to afford the necessary sustenance to the plant, for if such manure is put around the roots the certain result is that the foliage will turn yellow and sickly, and the plants are practically "killed by too much kindness." Most growers, therefore, use manure only when spent, such as from an old hot-bed, when divested, of course, of a greater part of its nourishing power. We have gained most satisfactory results from placing a tick dressing of rich, rank manure at least 6 inches below the roots of the plants when put into the ground. The result is that they have to go and fetch their required nourishment, and it is abundantly clear that, when so planted, they may be trusted to take only what is necessary for their maintenance in full health and vigour. Nearly a year's experience has convinced me that this may be done with perfect safety, and without fear of producing the evil effects which accompany the placing of rank manure in juxtaposition to the roots of the plant. With respect to the wireworm, I find that the use of "Mustard waste," or the chaff and refuse of Mustard seed, is a complete protection. Last year, in layering, we commenced operations by placing round each plant a layer of this "Mustard waste" about three-quarters of an inch thick, and over and upon this was placed the ordinary layering soil. The result was a complete immunity from the attacks of the wireworms, which could not penetrate the protecting "floor" of Mustard waste. A certain number of plants were layered, as usual, without this protection, and of these we lost from 50 to 75 per cent. of the layers. The idea did not originate at Hayes, but was suggested to us by Mr. Edmunds, of West-ham, who supplied us with the Mustard waste, and who has my grateful acknowledgments. The process is so simple, and the results so entirely satisfactory, that I feel I should communicate it to your readers without further delay. The Mustard waste appears to act as a stimulant, as the layers rooted freely into and through it, and were distinctly better rooted than on plants to which it had not been applied. *Martin E. Smith.* [The beneficial agency of Mustard in some form or another in warding off attacks from wireworm has long been known to cultivators, and was discussed in these columns on March 6, 1897. ED.]

THE CRYSTAL PALACE FRUIT SHOW.—I am delighted to find that the Royal Horticultural Society has done the right thing in the matter of grouping counties in the competitive classes of fruit. That fact alone should bring a large display of fruit, for, as you well say, what chance has an exhibitor from Staffordshire or Yorkshire of winning a prize when showing against growers from Maidstone. But I opine the Royal Horticultural Society might have gone a step further and made a Metropolitan class or group, taking a radius of ten miles round the metropolis, including parts of Middlesex and Essex, Kent and Surrey. To do this would ensure strong competition in the class. J. P.

THE MISSING ORCHIDS.—I hope the R.H.S. will pay heed to the suggestion of "S. S." on the loss of M. J. Jules Hye's Orchids, and close the show earlier on the last day; also to Mr. C. Wolley Dod's protests concerning the ventilation of the tents. For ourselves,

we could not remove all of our *Caladiums* on the last day, and some were left to be fetched early the next day, when, to our astonishment, the side canvas had been removed from the tent, and the cold air had been driving through the plants all the night. Of course, they were spoiled, if not killed. These things ought not to occur. J. Feed.

—Whilst much fuss is being made over the loss of four or five Orchids, entirely through the neglect of the owner to take common precautions at the recent Temple show, no one seems to have thought it worth while to remark that out of the many thousands of plants seen there, these few neglected Orchids were the only ones lost. That is a fact the management is entitled to some credit for. There are some people in the world who seem to think that when something has to be done, to-morrow will do as well as to-day. That seems to have been the dominating idea of the owner of these lost Orchids. Most persons owning what seem to have been exceptionally valuable plants would have set about securing them the moment the show closed, yet we have been told that three hours later the plants were still safe on the tables, and it was not till yet another hour had elapsed that any effort was made to pack the plants. What earthly value in such case would it have been to have closed the show an hour earlier ere visitors paying at the gate at 4 o'clock could not have seen the whole. But is not the observation of "S. S." most unjust when he remarks, "that those who pay for entrance after that hour include some who avail themselves of the opportunity of laying their hands on anything." Is not such a suggestion a monstrous calumny? Does he assume that some such visitor, biding his time, coolly took the lost Orchids in his arms, and marched with them out of the gate, and so away? That is too absurd an idea. The Orchids must have gone in some vehicle, or they would have been noticed. Surely it may not be difficult to reduce the range of suspicion to a reasonable area. It is hardly probable the plants were carried off without some employed being aware of what was done, and it may be possible to get at that knowledge, and so find the thief, if the Royal Horticultural Society and the British trade combined offer a very tempting reward. The value of the plants is a minor matter compared with the unearthly of the thief, and having him exposed and punished. When it is urged that earlier closing would prevent plants being thus surreptitiously removed, I must ask how it is possible to prevent any similar occurrence in the future, unless the owner of the plants or his servants are there to look after them. When we remember how many hundreds of flower-shows are held yearly, and how many hundreds of thousands of plants, &c., are concerned, then how rarely anything is lost, is it enough to base on the loss through owner's negligence in one case of a few plants, a demand on all horticultural societies that they should close their shows earlier? The impression is now prevailing that very much more fuss is being made over this incident than it merits. A. D. [We feel the disgrace too keenly to assent to this proposition. ED.]

—With regard to the lost Orchids, the suggestion from your correspondent "S. S." to close shows earlier, is undoubtedly a good one, but it does not appear to strike at the root of the matter. Would it not be advisable in the future for the Royal Horticultural Society to supply special badges to each exhibitor, one for himself and one for every assistant, to be worn directly after closing time? Then, by giving strict orders to the police to clear out any person not wearing the badge, the risk of loss to exhibitors, who would, of course, see that the badge did not fall into other than trustworthy hands, would be reduced to a minimum. A. F. T.

WHITE CABBAGE - BUTTERFLIES, AND THE SCHOOL CHILDREN.—We are afflicted here, in Moulton, South Lincolnshire, with a perfect plague of white butterflies, and we know what that means so far as the Brassica family are concerned. I therefore went into the Board Schools the other day and told the children that I would give a penny a score for as many of these destructive creatures as could be supplied; the result is they are coming in at the rate of 100 a day. The benefit which this will be to the Brassica family in the neighbourhood is incalculable. R. K. [It will pay to set the children to smash the colonies of eggs that are laid by the butterfly on the undersides of the Cabbage and Cauliflower leaves; a hundred eggs may be destroyed with one or two nips of the finger and thumb. ED.]

NEPETA GLECHOMA VARIEGATA.—This hardy variegated trailing species—in the vernacular, ground

Ivy—is seldom grown as a garden plant, although a desirable subject for planting in vases, window-boxes, &c. for spring and summer effect, as drapery for the sides of these. When a plant is placed in slight warmth, any cuttings made of the shoots strike readily at this season. It is a plant that is adapted for the rock garden. I noticed some baskets covered with this plant at the Royal Horticultural Society's meeting on April 12, exhibited by Mr. C. Turner, Royal Nursery, Slough. They received a Cultural Commendation; and, probably, the fact that the good use the plant was put to may help to bring the variegated form into general notice. C. H.

THYRSACANTHUS SCHOMBURGKIANUS.—It is much easier to write the old specific name of rutilans; but, as the botanist decrees this is only a synonymy [?], it is well to be correct. This charming winter and early spring-flowering plant is now to be seen in great beauty in the Hassocks Nurseries of Messrs. Balchin & Sons. A native of tropical Africa, it needs stove treatment, and will be found lasting in an intermediate-house, where it has produced its long pendulous racemes. The extraordinary floriferousness of the small plants at the Hassocks Nursery is remarkable; it is, when properly grown, an abundant bloomer, producing its high-coloured flowers in great plenty, while its graceful method of displaying its racemes of bloom constitutes it an excellent table-plant. Doing well in a good light loam with some well-decomposed manure and leaf-mould added, it should be kept growing as fast as possible till the specimens become pot-bound, and then they flower all the more freely; liberal supplies of water and warmth are necessary. R. D. [T. Schomburgkianus is a native of Guiana, while T. rutilans is a native of New Granada, according to the *Index Kewensis*. Ed.]

PASSIFLORA BONAPARTEA AND BOUSSINGAULTIA BASELLOIDES.—I have had a peculiar experience with these plants, which were planted out in a hothouse border, well exposed to the sun's rays, and therefore suited to their needs. As yet no flowers have appeared. I may add, that the Bous-singaultia was tried first in a greenhouse, but it was not satisfactory there. If some of those who read this note will kindly give me a hint as to what I should do with these plants, I should be greatly obliged. L. G.

PRIMULA TRAILLI.—Having had another year's experience, I can now speak with certainty as to Primula Trailli. I heard from my Indian botanical friend that he had met the collector of the seed sent me as that of P. Trailli, and he had shown him the gardening papers which I had sent to India, with figures of the plants that bloomed at Heatherbank. These, he said, were quite different from P. Trailli, and that he had collected seeds of other Primulas at the same time as P. Trailli, that the seed was mixed, and that of P. Trailli had not come up. I think that the best name for the Primula which I exhibited would be P. Munroi, or P. involucreata major; it is utterly unlike the form of P. Munroi or P. involucreata which I have grown for years. It has, when grown close to the glass, stems above 18 inches high, with long leaves, with no tendency to be drawn up. Probably some Indian Primroses have different forms. Some years ago I exhibited before the floral committee of the Royal Horticultural Society a giant form of P. capitata, which I suggested should be named P. capitata major. It received a First-class Certificate on Oct. 9, 1886. Some time afterwards a nurseryman exhibited at the Royal Horticultural Society a giant form of this Primrose, which I suppose the floral committee considered to be different from mine, as this also secured a certificate or an award. The committee only followed the usual precedents in awarding a mark of merit to a fine, distinct, new form of Primula in the case of P. Trailli; but I think that the name should be changed, and the fact recognised that P. Trailli has still to be introduced. George P. Wilson, Heatherbank, Weybridge Heath.

A GOLDEN-LEAVED CURRANT.—It is possible that objection to the introduction of one of the richest-coloured of foliage shrubs into shrubberies or flower-beds, because it is a Black Currant, and therefore a garden fruit, just as one of the most effective of bedding foliage plants has been objected to on the ground that it is but a Beet. But it is not possible to look at the few bushes of this very richly-coloured Black Currant growing in the Royal Horticultural Gardens, Chiswick, without realising that of its kind it is one of the most striking and effective of golden-leaved deciduous shrubs in cultivation. Its colour is persistent and equal. Any one wanting a groundwork of gold out of which to

have rising the dark-leaved Prunus, or Hazel, or any other red-leaved tree or shrub, would find this Currant in the summer, at least, perfect for the purpose. A. D.

PROPOSED WIDNES PUBLIC PARK AND ITS COST.—I wish to call the attention of intending competitors to the very unfair conditions issued by the committee who have this matter in hand. The most objectionable conditions are as follows:—1. Only £4000 is allowed for laying-out 34 acres of land, fencing-in, entrances, and all necessary architectural features, and the formation of a lake and planting. Anyone who has had to do with park formation well knows that this is impossible. 2. The committee ask for drawings, which would require at least four double-elephant sheets, and in addition to these six perspective-views, which are to show the park as it will appear in five years' time. All these drawings are to be sent in by July 1, showing clearly that the committee do not understand what they are asking for. 3. No assessor is named. 4. If twenty competitors enter the lists, the actual cost of their work, including expenses, would amount to £400, or £20 each. For this expenditure, the committee offer in premiums the sum of £52 10s. 5. The committee do not offer to employ the successful competitor. As a warning to the younger men, I might add that out of the large number of park competitions I have won, in only one instance have I been asked to carry out my design. Thos. H. Mawson, Landscape Gardener, Windermere.

HOLLBÆLLIA LATIFOLIA.—In Devon the subject of this note is a perfectly hardy evergreen creeper, thriving on an east wall, and flowering annually fairly well early in May. I think, however, if our plant had been given a southern aspect better results would have followed. The flower is rather small, greenish-white, and possessing a delightful fragrance. It is a native of the Himalayan Mountains, and was introduced in 1840, and is sometimes known as Stauntonia latifolia. Pruning is required every year, early in the autumn, cutting back the trailing shoots, which if left untouched with the knife soon become an entangled mass, and not very productive of flowers. It is usually propagated here by making cuttings of half-ripened shoots in the summer; but last January a lady living at Paignton, near Torquay, sent to me a ripe fruit, purple in colour, oblong, and about the size of a duck's egg, which I took for a fruit of some species of Passiflora. The seeds were sown on January 29, and there are now twelve young thrifty plants. Last month the same lady kindly sent me flowers and foliage of this creeper, which were at once identified as those of Holbællia latifolia. The mother plant bore several fruits, and is planted near a verandah, over which it is trained, and beyond being sheltered by the dwelling it is otherwise unprotected. Is it not unusual for Holbællia to fruit out-of-doors in this country? and perhaps others will kindly write their experiences of it. James Mayne, Bickton Gardens, B. Salterton. [See *Gardeners' Chronicle*, Feb. 19, 1876, fig. 46. Ed.]

CARMICHAEL'S PEAR-TREES AT SANDRINGHAM HALL.—I had often the pleasure of seeing and admiring the trees referred to by Mr. Carmichael in a recent issue of the *Gardeners' Chronicle*, and have seldom seen finer Pear-trees. In lecturing in East Anglia, I used to advise my hearers to take advantage of the cheap Great Eastern trips, and the free days to Sandringham, and go and see these trees; and I have reason to believe that not a few noblemen, gentlemen, clergy, farmers, tradesmen, mechanics, and labourers took my advice, and some of them are now reaping the reward of what they then saw. I shall not readily forget the interest excited at some of my lectures, when grand specimens of the Pitmaston Duchess, and the Uvedale St. Germain stewing Pear were mounted on slender or weeping Pyramids, as illustrating the effects of heavy cropping, as a most efficient and profitable means of training, &c. Few sights were more pleasing in the princely gardens at Sandringham than the fine Pear-trees planted and trained by Mr. Wm. Carmichael. D. T. F.

THE GARDEN CHARITIES.—I do not wish to decry in any way the management of these, but the system and principle on which they are carried out appears to me to be utterly wrong, and the exceedingly small number [of gardeners] who do subscribe shows that I am not alone in my opinion. A gardener is usually not a person who can afford to subscribe liberally to general charities; it needs all his care to do a little to provide for himself and his

family, and naturally, under the circumstances, his charity begins, as it should, at home. If he subscribes 5s. per annum he gets a vote, but of what use is the vote to him? practically none; all his money may, and probably will, go to someone else, and it is worth while to consider what this 5s. per annum means to him. If he begins to save this amount from the age of twenty-four, his average expectation of life is forty years more. His 5s. per annum, saved and invested at 4 per cent. interest, would, at the end of the period, amount to the sum of £23 15s. If he saved 5s. per month, it would be £285. Why should he sacrifice the certainty of £23 15s. for a simple vote? If the thing is to be a success, the subscriber, who is almost invariably a poor man, must be able to depend on some certain return for his money—5s. per annum would, if properly invested, provide him with a valuable sick and accident fund, or it would ensure his family the sum of £23 15s. at his death, whenever it occurred. Very large numbers are subscribers to sick and benefit clubs, and these are very costly luxuries indeed. Taking the very best and most liberal of the English industrial insurance offices, it will be found that, on an average for several years past, for every shilling paid in premiums, less than 1½d. has been paid back, all the remainder going in expenses, profits to shareholders, &c. What this really means none but those behind the scenes know; but it is a fact that the difference between the premiums paid to one office only, exceeded the amount paid for claims during the last year by considerably over £2,800,000. In the face of such figures as these, one ceases to wonder at the palatial offices, the salaries to officials, and the high price of the shares. Let it be borne in mind that this is only one out of a great many offices, and the loss to the poor workman will be appreciated. If a gardeners' industrial assurance can be inaugurated, dispensing with all the magnificent offices, salaries, and profits, and a fair and certain return for his hard-earned money could be depended on, it would not be necessary to make urgent appeals—they would gladly come in, in their thousands, without being asked. At present they naturally like to feel they are saving something, and the Post-office savings-bank is their best gardeners' benevolent society. Can this be wondered at? and if I am wrong, will some one set me right? Thomas Fletcher. [It is easy to set our correspondent right on some points; there are no palatial offices, and very few and moderate salaries to officials. Ed.]

SINNINGIA (STENOCASTRA) CONCINNA, S. GUTTATA, S. SPECIOSA, AND OTHERS.—Mr. Burbidge's charming illustration, and Mr. Lynch's description, almost make this old favourite grow and bloom afresh, on p. 361 of the *Gardeners' Chronicle*. Fortunately the grace and beauty of such plants, as well as their botanical interest, are pretty sure to furnish them with a welcome home in our botanical gardens. Most of the Sinningias, and S. concinna in particular, bloom so profusely that it seems impossible to find room for more blooms. Nevertheless there was, years ago, a more floriferous form of the type known as S. c. multiflora, with more and larger flowers than the species, and with a larger proportion of bluish-lilac in the flowers. Notwithstanding the dwarf neat habit and other merits of this pretty plant, and that we have possessed it for nearly forty years, it never became common in gardens. The smaller species had to compete for public favour with several larger, and as many thought more beautiful species, such as S. guttata, so like as to be said by some to be identical with S. velutina, with its thickly spotted or dotted throat. The taller stature, larger leaves, and more varied beauty of this and kindred species, appealed more powerfully to the eye and imagination of cultivators, and suggested the possibility of pouring new forms and colours into the rather common-place Gloxinias of the period through crossing them with the different species of Sinningias. Mr. Burbidge points out, in his useful book, *The Improvement of Cultivated Plants*, how our present race of garden Gloxinias began to advance by leaps and bounds from the year 1844. In that year, Mr. Carton, then gardener to the Duke of Northumberland at Sion House, introduced four new and greatly improved Gloxinias. These were Gloxinia insignis, G. magnifica, G. bicolor, and G. Cartoni. The seed-bearing parent being Gloxinia speciosa rubra fertilised with the pollen of Sinningia guttata, Gloxinia maculata, and many others followed. Other species of Sinningia, such as S. speciosa, in its several varieties, with upright flowers and long drooping leaves; S. conspicua, and others, were doubtless used with

more or less effect. Having fixed most of the finer forms, colours, markings of the finer *Sinningias* in our modern *Gloxinias*, the *Sinningias* themselves have mostly been relegated to back places in, or disappeared from private gardens. It is hoped, however, that sufficient species and varieties remain in our botanic gardens to show the rising race what *Sinningias* are like, and also to prove their potency in the improvement of *Gesneras*, which have made comparatively little progress in the period that has witnessed such an enormous development in the *Gloxinia*. I still believe—in these days of glitter and glare, and all too exclusive provision for excessive cutting and crushing together of flowers for decorative purposes—that a small choice collection of *Sinningias* are worth growing for their own sake, as well as for their probable potency in the improvement of closely-allied genera or species through cross-breeding, &c. *D. T. F.*

THE PRESENT PLAGUE OF INSECTS.—The appended poetic effusion was taken from the June number of the *Agricultural Economist*, which seems to have taken it from another contemporary, and by its wording and phraseology I should think it came originally from the U.S.A. For its truth and practical wisdom it is worth repeating. Despite a showery May, and a host of rooks and starlings, insect-pests are very prevalent, and the tops of the Oak-trees in the adjoining woods are getting brown and bare from the ravages of looper-caterpillars, and the same species are turning their attention to the Apple-trees; but we must, in the words of the poet, "keep a fightin'," and, I hope, successfully. The remedy that we use is as follows, viz.:—3 oz. Paris Green in paste, 2 lb. sulphate-of-copper, 4 lb. of lime, dissolved separately in earthen vessels; and 25 gals. soft-water, all being mixed together in a wooden tub, then strained, kept well mixed, and applied by a Vermorel spray-pump. I can recommend the above mixture as being both safe and effectual. We have about 9 acres of mixed orchard, principally Apples; we have a good set of fruit, and between the rows of Apples we have "lands" 16 feet wide planted with Potatoes, and the diluted Bordeaux Mixture used with the Paris Green acts as an antidote to the Potato disease.

CANKER WORMS.

Have you canker worms or Pear slugs?
Keep a-fightin'!
Saw flies, codlin moths or plant bugs?
Keep a fightin'!
While you're foolin' round, they're feedin',
While you're cussin' 'em, they're breedin',
A good pizen's what you're needin';
Keep a-fightin'!
You will want some Paris Green, sir,
Keep a-fightin'!
Insect-powder, kerosene, sir,
Keep a-fightin'!
Oh, these bugs 'll keep you humpin',
With their hoppin', skippin', jumpin',
What you've got to do is *pumpin'*;
Keep a fightin'!
Butterflies, an' gnats, an' millers,
Keep a-fightin'!
Beetles, bugs, and caterpillars,
Keep a-fightin'!
Be they plump or be they flaccid,
Hellebore, arsenic, acid,
Are the things to make 'em placid;
Keep a-fightin'!

R. M., Newbury, June 13. [The greatest care should be taken in the use of such poisonous substances. *Ed.*]

VEGETATION IN THE NORTH.—While all the foliage of forest trees, and the flowers on many of these are in great beauty, and by no means late, quite the reverse is the case with the Ash, many of which have scarcely any leaves on them at all, and none is in full leaf; and it seems so as far south as Lancashire. Is it so further south? *W. H. Maxwell, Munches, Dalbeattie.*

THE OAK CATERPILLAR OR LEAF-ROLLER (*TORTRIX VIRIDANA*).—I live on the borders of Needwood Forest, where, as everyone knows, are some of the finest Oaks in England, and the district generally produces Oak of the best quality. Up to 1896, although I observed occasional attacks of the caterpillar, I never knew of serious damage being done. But since 1896 the caterpillar has steadily increased and spread over a greater area until, here at least, it threatens the absolute destruction of the trees, both old and young. Now, some of your readers (if you are good enough to insert this letter) may be able to

say if violent attacks have occurred, if the trees have died, or if, as is the case occasionally, the insect, after a time disappeared. [Yes.] If the conclusion to be arrived at is, that the trees die, and the insect flourishes, the lesson to be learned is to plant some other tree as your main crop than Oak, and a very serious one it is. One thing only I have observed regarding a check to the destruction, and that is, that the rooks appear to live in the infected trees, and if it can be proved, or appears that the rooks eat the caterpillars, which I believe they do, then the lesson is, do not shoot your rooks for a few years. This strikes me as almost a national question. I do not therefore apologise for a somewhat long letter. *T. J. Levett.* [A good remedy is given in another letter, under "The present plague of insects." The eggs are laid in the previous summer and autumn, and being very small, are scarcely observable on the trees. Something might be done by encouraging the willow wren and the white-throats. These birds devouring the caterpillars; and rooks, starlings, titmice, and nut-hatches, are said to be of use in the matter. *Ed.*]

FRUIT CROPS IN EAST KENT.—The various fruit crops at Northdown are promising; Apples have set freely, some of the trees being "roped" with fruits. Peaches are a very good crop, and have already been thinned twice, and blister is not common. Currants and Gooseberries have very satisfactory crops, as also Strawberries and Plums. Pears can only be considered a fair crop. Our Apple-trees last year were thinly cropped, and some were quite bare of fruit, and this paucity gave the trees a necessary rest. The Cherry-Plum (*Myrobalana*), which fruited so very heavily last year, has this season failed to fruit, owing to frost; this is the drawback with this variety. It flowers so early; moreover, the heavy crop of 1897 may have weakened the trees somewhat. Figs are not so heavily cropped as usual, much of the young fruit, owing to the mildness of last autumn, were too advanced, and have now fallen. If in other parts of the country the set of fruit is as good as here, 1898 will be a very good fruit year. *H. Markham, Northdown, Margate.*

PINK-COLOURED LILY OF THE VALLEY.—It is hoped that Mr. Stroug's note about this variety in a recent number of the *Gardeners' Chronicle*, will not afford a stimulus to the cultivation of this plant. The plant is greatly inferior to the pure white varieties; and it used years ago to be grown as *Convallaria majalis* var. *rubra*. Fortunately, the plant lacks the vigour of the white varieties. It is almost equally true of the double-flowered variety of valley Lilies, though, as a rule, these are mostly white. *D. T. Fish.*

ROYAL SOVEREIGN STRAWBERRY.—Mr. Wythes' encomium in the *Gard. Chron.* on this fine variety is being confirmed by many gardeners who gave it a trial last year and this season. In my opinion it is one if not the best raised by Mr. Laxton. I have not grown the Royal Sovereign for supplying very early fruit, and when it is not brought very fast the yield is enormous, the fruits firm, large, and of good quality, and as forced fruit they bear carriage well. In the open, young plants raised in small pots in July and planted at a foot apart in the rows on deeply worked and heavily manured ground, had very fine trusses of bloom, in some instances four and five to a plant. The fruits on June 7 were as large as full-grown Cobnuts, and would have been earlier had the plants been set out on a warmer part of the garden. I am not again going to cultivate the variety *Auguste Nicaise*, which is praised for its large size, the fruit being too soft to bear transit, and in damp weather they decay too soon. It would have served my purpose better this season had all my latest Strawberries in pots consisted of Royal Sovereign. *H. Markham, Margate.*

LAW NOTES.

CLAIM FOR VALUE OF GOODS RECEIVED.

At the last sitting of the Wandsworth County Court, before His Honour Judge Lushington, John Van Dillwyu and Louis Thiel, who carry on business at Meirelbeke-by-Gand, Belgium, sued the Metropolitan United Floral Co. Ltd., who have a branch at 137, Northcote Road, Clapham Junction, and a nursery at South Street, Wandsworth, to recover the sum of £42 for plants supplied. There was a set-off by the defendants of £42 for depreciation of plants, &c., supplied by the plaintiffs. The plaintiffs' case was, that they supplied the defendant company with

plants, and it was alleged that they were good value for money. It was denied that they were in any way forced or frost-bitten. The defendants admitted £26, but with regard to the balance, contended that the plants were useless, and not saleable on the English market; however, they kept the plants, and sold them for what they were worth. His Honour held that the plaintiffs were entitled to the whole amount of the claim, and gave judgment accordingly with costs. The set-off of the defendants was ignored.

Obituary.

HENRY HEMSLEY.—Mr. Hemsley, who died on June 7 last, in the 79th year of his age, was a well-known expert in the nursery trade. He was an able cultivator and enthusiastic raiser of new varieties of plants. Parson's White Mignonette is a case in point, to which a First-class Certificate was awarded in 1870. The greater part of Mr. Hemsley's active career was spent in Sussex, where he was well known. For some years past he has lived in retirement. It is now some forty years since I first made his acquaintance, he having been an intimate friend of my father, Mr. W. Boiting-Hemsley, F.R.S., of Kew, and Mr. A. Hemsley, of Mr. H. B. May's nursery, are sons of the deceased. *Jas. Hudson.*

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 14.—The first meeting of the Committees since the Temple Show was held in the Drill Hall, James' Street, Westminster, on Tuesday last. The hall was well filled with exhibits of plants and flowers, but particularly cut-flowers. Herbaceous, perennial, and bulbous hardy plants were represented by cut-flowers in great profusion, the same things being in many cases to be remarked in more than one collection. Such popular hardy flowers as *Peonies*, *Irises*, *Rhododendrons*, *Pyrethrums*, *Aquilegias*, &c. gave to the scene a decided seasonable appearance; but the first out-of-door grown Roses have yet to be shown, if we except a few garden Roses from Messrs. Wm. Paul & Sons.

It was announced before the lecture was commenced in the afternoon, that owing to the cold sunless weather at present prevalent, it was proposed to postpone the exhibition of Roses in connection with the Royal Horticultural Society until July 12. The necessity of this seemed apparent in the extraordinary number of overcoats and umbrellas in the hall, a number suggestive of March rather than of June. Carnations of all sections appear to be increasingly popular, and on this occasion there was a remarkable exhibit of plants of the *Malmesbury* type from J. P. Morgan, Esq., Dover House, Roehampton. By the Fruit Committee awards were made to a new Melon, a new Cucumber, a Cabbage, and a variety of Spinach.

It is satisfactory to record that a very unusual number of new members was added to the Society on Tuesday, there being so far as we could ascertain about 108.

Floral Committee.

Present: W. Marshall, Esq., chairman; and Messrs. John Fraser, H. B. May, Geo. Nicholson, J. H. Fitt, Geo. Stevens, W. Howe, Jas. Hudson, J. P. McLeod, J. Jennings, J. Fraser, W. Bain, George Gordon, J. D. Pawle, Ed. Mawley, Chas. E. Shea, Chas. E. Pearson, E. T. Cook, Ed. Beckett, Chas. Bick, Geo. Paul, H. J. Jones, Chas. T. Drury, J. W. Barr, W. Selfe-Leonard, C. E. Cant, and T. W. Sanders.

Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, showed a group of Ferns which illustrated sixty varieties that have been raised at the establishment during the last twelve years or so. Thirty of these have already been awarded First-class Certificates or Awards of Merit by the Royal Horticultural Society. The centre plant was the new *Phlebodium aureum* Mayi, and conspicuous plants were *Gymnogramma Alstonii* superba, *Pteris serrulata* corymbosa, *Pteris tremula* elegans, *Pteris Summersii*, *Gymnogramma grandiceps* superba, *Asplenium incisum*, *Gymnogramma flavescens*, *Davallia filix-feris* robusta, &c. These are further noticed on p. 372, and several of them are figured in our present issue. Mr. MAY had also a pretty yellow flowering *Tropeolum* named Sunlight, and a very large pink-flowering zonal *Pelargonium* known as Millfield Rival (Silver Flora Medal).

Messrs. COLLINS BROS., Waterloo Road, London, S.E., and Hampton, Middlesex, showed a collection of hardy flowers in bunches, including conspicuously good varieties of *Pyrethrum* Monarch, which is said to bloom one fortnight later than Hamlet. It is a very large-flowering sort, with deep pink blossoms nearly 3 inches across, and exceptionally free (Award of Merit); a very fine crimson flowering sort is Mrs. Bateman Brown. Several very good varieties of *Gaillardia*

grandiflora were observed, also *Geum minimum*, the excellent market plant *Achillea mongolica*, &c.

From Mr. Geo. Norman, gr. to Lord SALISBURY, Hatfield House, Herts, came a basket of Carnations of the two very excellent border varieties, Miss Audrey Campbell (yellow), and King Arthur, bright crimson. They were sprays only, but these were inserted into damp moss, and may have been mistaken by some for plants. The yellow variety was placed in the centre, and amidst a circle of scarlet flowers. Generally the blooms were very good in quality (Silver Banksian Medal).

The centre of the hall was occupied by a large group of *Souvenir de la Malmaison* Carnations, shown and cultivated by Mr. McLeod, gr. to J. P. MORGAN, Esq., Dover House, Rochester, S.W. These plants were fully described in our issue for June 4, on p. 348. About thirty specimen plants were shown, and most of these bore about forty-five flowering growths each, whilst all the shoots were furnished with vigorous foliage, free of the least sign of disease. It has proved, however, to be impossible to induce the whole or even the greater part of the flowers on these large plants to expand at one time, as each plant affords a long succession of blooms. The group, therefore, did not present the floral display that smaller plants in bloom, selected from a collection and placed together, will afford, and this we were informed was the reason that a Silver-gilt Flora Medal was awarded in the place of a Gold Medal. Yet as specimens of a very difficult plant to grow successfully, they were grand, there being probably none others equal to them in this country. They were arranged in the form of a central group, and then threaded to smaller terminating groups at each end. The sides were composed of smaller plants, and amongst these were *The Churchwarden*, *Lady Grimston*, and others of deeper and brighter colours than the ordinary pink variety. Ferns were interspersed, but these were dwarf, in order not to hide the bases of the plants.

Messrs. H. CANNELL & SONS, Swanley, Kent, made an exhibit of tuberous-rooted Begonias, all of them double-flowered. An Award of Merit was recommended to a variety with very bright scarlet camellia-shaped flowers, named *Commodore Dewey*, an acquisition. *Lady Naylor Leyland* was noticed as being a very lovely salmon-pink, with fringed petals; Miss M. Bradbury is paler pink, has a larger, rather looser flower; Mrs. C. J. Whittington is a pretty picotee-like flower, but shows several centres—a characteristic we regard as a disadvantage to double-flowered Begonias; Miss M. Griffith is a pure white flower, with beautifully frilled petals; *Duchess of Montrose* is one of the large yellows; *Lord Lindsay* is another yellow one, but has very different shaped blooms. Messrs. Cannell had also a lovely display of varieties of *Aquilegias*; the delicate tints of some of these varieties are now beautiful in the extreme.

H. CANNELL & SONS also exhibited a large and fine semi-circular group of the newer varieties of *Canna indica*, and among them we remarked *Incendie*, a flower of a scarlet ground colour, bordered with yellow, and having scarlet blotches on yellow; *Paul Neylan*, of orange scarlet, and furnished with thin yellow edge; *Aurora*, in colour a soft orange red, large; *Florence Vaughan*, yellow, with the entire area of the segments spotted with crimson; *Explorateur Campbell*, of the deepest crimson colour, and with large segments; *Aurea*, a self, of a soft lemon-yellow; *Queen Charlotte*, still one of the best of its kind, crimson, bordered with yellow; *Madame Barrie*, of a tint of orange-scarlet; and *Conquerant*, a self, of a lively deep orange tint (Silver-gilt Flora Medal).

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, obtained Awards of Merit for *Cannas* Mrs. W. Marshall and *Mosaic*. The former is a very pretty bright flower of rich yellow, with each segment and lip marked with crimson. The other variety has a yellow flower, but the whole of it is densely and richly spotted with scarlet. Other very fine *Cannas* shown by Messrs. Paul were *William Tolfts*, *Senator A. Sumner*, and *Madame St. Drer*. In addition to the group of *Cannas*, Messrs. Paul had a few hardy flowers, including very fine inflorescences of *Thalictrum aquilegifolium rubrum* and *album*, and they were recommended an Award of Merit for *Mecanopsis cambrica plena* (double Welsh Poppy), figured in *Gardeners' Chronicle*, May 30, 1896, p. 671.

Sir TREVOR LAWRENCE, Bart., Burford, Dorset (gr. Mr. Bain), showed some interesting hardy flowers, including *Heuchera* labelled *leuzoides*, *Lychnis viscaria alba*, *Pentstemon ovatus*, *Ornithogalum lunifolia*, with greyish foliage, and pure white blossoms; *Hedysarum multijugum*, *Heuchera sanguinea alba*, and a very showy crimson Poppy named *Duke of Teck*.

Sprays of *Rhododendron* flowers and *Roses* from Messrs. WM. PAUL & SON, Waltham Cross, Herts, made a very gorgeous display of bloom. Numerous varieties of *Rhododendrons* were shown as bright vigorous clusters of blooms, and we were informed that the plants grow in the ordinary etape loam of the Loughton (Essex) Nursery. The garden *Roses* included seedlings of the Scotch Briar, a dense habit, very free-blooming *Rose*, and varieties of the Sweet Briar (Silver Banksian Medal).

A grand display of Chinese *Pæonies*, *Pyrethrums*, &c., came from Messrs. KELWAY & SON, Langport, Somerset. The blooms, without exception, were very large, of great substance, and fine colour. It was difficult to ascertain the names of the varieties, owing to the smallness of the white tickets bearing them, and which were for the most part hidden among the foliage. It goes without saying, however, that these were of the very choicest. One of these, named *Ella Christine*, a large globular flower, of faint blush, and very fine, was recommended an Award of Merit. Other noticeable ones were Mrs. Stubbs, pink and white; *Admiral Dewey*, and *Marchioness of Lansdowne*. An Award of Merit

was also recommended to *Pyrethrum Lady Kildare*, and the group was awarded a Silver Flora Medal.

Messrs. VEITCH & SONS, of Chelsea, exhibited some choice *Gloxinias*, in small groups of several varieties. An Award of Merit was made to *Galatea*, a white flower marked with lilac. *Tribly*, a purple flower much spotted; *Seraph*, scarlet with white throat; *Virginalis*, pure white, and *Empress of India*, intense crimson, were all pretty. An Award of Merit was also recommended to *Philadelphus coronarius* var. *Mont Blanc*, a very free and precocious flowering pure white variety; sprays of *Cytisus Scoparius* var. *pallida* were also shown by Messrs. Veitch. There were also sprays of flowering shrubs, including *Cornus Kousa* (*Banhamia japonica*), *Hydrangea hortensis mandschurica*, *Hibiscus celestis*, a pretty blue single flowered species, *Hydrangea japonica Mariessii*, &c. They also put up a big semicircular group of hardy plants in flower at the end of the hall. These included masses of *Heuchera sanguinea*, of double flowered *Pyrethrum roseum*, among which we note the old and still unsurpassed *M. Barral*, *Aphrodite*, *Mrs. Dix*, and *Model*, all good and distinct in tints, and possessing very double flowers. There were *Iris xiphium* in great variety, *Iremurus himalaicus* and *E. robustus*, numerous old blooms of *Aquilegia hybrida*, the not over-plentiful white-flowered Iceland Poppy, *Saxifraga nepalensis* and others, and *Verbascum olympicum*.

The Hon. MARSHAM TOWNSEND, Froggnal, showed a few Carnations.

Mr. FRED. PERKINS, nurseryman, Regent Street, Leamington, showed a number of plants of *Carnation Primrose Queen*, a scentless variety, of a nice lemon or primrose-yellow shade.

Messrs. BARR & SONS, King Street, Covent Garden, and Long Ditton, Surrey, exhibited a very comprehensive collection of tuberous and other species of *Iris* in great variety, inclusive of Spanish and English types; *Iris spuria*, *I. pallida*, *I. Lorteti*, &c. Other cut flowers consisted of *Muscari phlomusum cristatum*, stronger than the type, and with longer flower-spikes; *Verbascum phoeniceum*, in several varieties; *Pink Lizzie Duval*, white, with fringed petals; *Brodiaea ixioides*, double-flowered *Anemone La Dame Blanche*, white; also *A. Snowball*, of a greenish-white colour, and also double; *Calochortus Mawianus*, white with a purplish haze or shade at bottom of the flower; new varieties of *Dodecatheon*, *Scillas*, *Geranium Maescevi*; *Campanula glomerata*, *Camassia grandiflora*, *Hemerocallis Dumortieri*, a flower of a rich yellow or orange-colour, *Pyrethrum roseum* varieties, *Poppies*, &c. (Silver gilt Banksian Medal).

Mr. JOHN RUSSELL, nurseryman, Richmond, Surrey, filled a long cross-table with cut blooms of hardy plants, set up in green bottles. We remarked numbers of *Iris*, *Pæonies*, *Hemerocallis*, *Papavers*, *Pyrethrum roseum*, *Heuchera*, *Veronicas*, *Senecio*, *Allium roseum*, *Delphiniums*, *Ixias* (many), *Cypripedium calceolus*, &c.

A Japanese Maple, said to be fifteen years old, growing in a small china trough, was shown by Miss HANKEY, 123, Cambridge Street, W. In hard wood the plant was about 1½ feet high, and it was brought from Japan last year.

From Mr. S. C. WHITEFIELD, Eastbourne, was shown a variety of Ivy-leaved *Pelargonium*, named *Pride of Mount Sherborne*, and flowering sprays of *Bignonia Lindleyana* were contributed by Lady C. FLOWDEN, Aston Bowant House, Tetworth.

Some paintings and sketches of flowers and fruits, from Miss S. PUTMAN, 13, Craven Park Road, Harlesden, N.W., were of considerable merit.

A bright scarlet-flowered zonal *Pelargonium*, from Messrs. W. & J. BROWN, Stamford, and named *John French*, appeared to be a useful one for bedding purposes.

Messrs. WALLACE & CO., Kilnfield Gardens, Colchester, made a gay exhibit of hardy bulbous flowers, including several of the earlier-flowering *Calochorti*. A First-class Certificate was awarded to one of these species named *C. Purdyi*. The flowers are about 9 inches or more high, rather small, silvery-white in colour, with light purple in the interior base; the petals are quite covered with soft downy hairs—a very pretty flower. We noticed also flowers of *C. pulchellus*, *C. Lyoni*, *C. Lorteti*, *Iris xiphium* in numerous varieties made a pretty show, and even more effective were the many varieties of *Iris germanica pallida*, of which Mrs. Darwin, a delicate flower containing much white, was very pretty. The charming little *I. pavonia* was also present, and fine flowers of *Anthericum liliastrium major*, the pretty and new *Lilium rubellum* (figured in a recent issue), &c. (Silver Banksian Medal).

Messrs. F. SANDER & CO., St. Albans, exhibited a group of new plants, including the *Acalyphas* *Sanderi* and *Godsefiana*. A First-class Certificate was awarded to *Mikania* (?) *Sanderi*, of which a plant over 3 feet in height was shown. The leaves are ovate acuminate, and green with velvety purple spots in colour; the midribs and stems reddish. *Caladium Lord Annesley*, with narrow acuminate leaves, centre red, with green border, the margins much crimped, was recommended an Award of Merit, and a like distinction was conferred upon an ornamental-leaved *Begonia* named Mrs. F. Sander. These handsome leaves had a green border, next silvery-red, and in centre a panel of deep brown colour.

Messrs. F. MILLER & CO., 267, Fulham Road, London, made a group of single-flowered *Petunias*, and *Mignonette* in pots; and Messrs. J. CHEAL & SONS, Lowfield Nursery, Crawley, had sprays of ornamental trees and shrubs.

From MARTIN R. SMITH, Esq., Warren House, Hayes Common (gr. Mr. Blick), were shown plants of *Carnation Lady Hermione* and *Baldwin*; the former is almost cherry-red in colour, and apparently a useful border variety; *Baldwin* is a rich pink-coloured variety of the *Malmaison* type.

Orchid Committee.

Present: Harry J. Veitch, Esq., in the chair; and Messrs. Jas. O'Brien (Hon. Sec.), De B. Crawshaw, R. Brooman-White, H. M. Pollett, H. Little, A. H. Snee, H. J. Chapman, W. H. Young, E. Hill, T. W. Bond, C. Winn, W. Cobb, Ed. Handlay, S. Courtauld, J. G. Fowler, J. Douglas, and J. Gabriel.

There was a very interesting show of Orchids, the species being represented by many fine varieties, and the hybrids were more than usually numerous and good.

Sir TREVOR LAWRENCE, Bart., Burford, Dorset (gr. Mr. W. H. White), showed a neat group, in which were a fine example of *Dendrobium Bensoniae*, with thirty-nine flowers on one bulb (Cultural Commendation). The singular feather-lipped *Bulbophyllum saltatorum* (Botanical Certificate); the pretty *Bulbophyllum Lebbii* "Burford variety," with markings of rose-purple instead of the usual brownish colour (Botanical Certificate); *Odontoglossum* × *elegantiss* "Burford variety," a very finely-coloured form of the pretty natural hybrid (Award of Merit); the white and yellow *Geodorum Augusti*, *Dendrobium polyphlebium*, a fine *Phalaenopsis Aphrodite*, *Disa* × *kewensis*, *Odontoglossum crispum*, &c.

Sir FREDERICK WIGAN, Clare Lawn, East Sheen (gr. Mr. W. H. Young), staged an effective group, in which were the pretty *Lælio-Cattleya* × *Lady Wigan*, with large bluish-white flowers, delicately marked with purple on the lip; *L.-C.* × *superbo-elegans*, with rose-purple flowers; *L.-C.* × *Arnockiana*, *L.-C.* × *Canhamiana Iolanthe*, *Cattleya Mossie maxima*, *Miltonia vexillaria* *Constance Wigan*, with very large, nearly white flowers; *Cymbidium tigrinum*, and a grand plant of *Scuticaria Hadweni*, with seven very fine flowers (Award of Merit).

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, were awarded a Silver Flora Medal for a group replete with fine hybrid Orchids. Of these were the magnificent *Lælio-Cattleya* × *Endora splendens* (*C. Mendeli* × *L. purpurata*), with gorgeously tinted flowers of great size (First-class Certificate); *L.-C.* × *Canhamiana superba*, equally fine in colour, and the handsomest of its class (Award of Merit); *L.-C.* × *Hippolyta arantia*, a charming clear yellow variation of the type, with a few purple lines on the lip (Award of Merit), and *Epi-Cattleya* × *radiato-Bowringiana* (*Epi. radiatum* × *C. Bowringiana*), a very remarkable hybrid of the habit of *E. fragrans* or *radiatum*, but with rose-purple flowers, approaching in form those of *C. Bowringiana* (Award of Merit). Other noteworthy things in Messrs. Veitch's group were varieties of *L.-C.* × *Hippolyta* varying much in colour, *L.-C.* × *Endora alba*, a fine plant of *Euphonia* × *Veitchii*, with nine spikes; the orange-scarlet *Epidendrum* × *radio-vittellum*, *Cattleya Mossie Reinckiana*, and other *Cattleyas*, *C.* × *Enone* (*Mossie* × *labiata*), *Disa* × *Veitchii*, *D.* × *Langleyensis*, *Cattleya* × *Gertrude* (*Mossie* × *J. superba*), *Trichopilia suavis alba*, &c.

Mr. Jas. HUDSON, gr. to Messrs. ROTHSCHILD, Gunnersbury House, was awarded a Silver Banksian Medal as a mark of good culture for a noble plant of *Lælia purpurata*, with thirty-three flowers. It is a portion of a plant purchased by Mr. Hudson's father in 1861.

Messrs. STANLEY, MORRIS & ASHTON, Southgate, were awarded a Silver Flora Medal for a fine group, in which the varieties of *Cattleya Mossie* were remarkable; among them were *C. M. Sir T. Lipton*, a pure white, with a slight pink tinge on the lip; *C. M. Lieutenant Hobson*, a very large and richly-coloured flower; *C. M. Exquisite*, a dark-coloured flower, with purple line on the petals; and *C. M. Southgate* var.; and the charming *Reinckiana Madonna*, a fine white, with slight purple marking on the lip (Award of Merit). In the same group were *Cypripedium* × *Sir T. Lipton* (*bellatulum album* × *ciliolare*), with cream-white flower, bearing a few purple spots; *Lælia purpurata* Southgate variety, and other fine forms; *Cypripedium* × *Donald Ross*; various *Odontoglossums*, &c.

Messrs. F. SANDER & CO., St. Albans, showed *Lælio-Cattleya* × *Duke of York* (*L.-C. elegans* × *C.* × *Brymeriana*), a handsome hybrid, with rose flowers (First-class Certificate); *L.-C.* × *Lily Measures*, a pretty hybrid; and *Sobria* × *Amezia*, with large cream-white rose-tinted flowers; *S.* × *Veitchii*, *S. xantholeuca alba*, and *Thunia* × *Veitchii*.

R. I. MEASURES, Esq., Camberwell (gr. Mr. H. J. Chapman), showed *Lælia purpurata Ernestii*, a pretty flower, with pale yellow shade of white, and pale rose disc to the lip (Award of Merit).

Messrs. HUGH LOW & CO., Bush Hill Park, showed *Odontoglossum crispum* "Prince of Wales," a nobly grown plant, bearing the finest inflorescence and largest flowers ever produced by the best white form of the species—a grand variety and a magnificent plant (First-Class Certificate and Cultural Commendation).

Messrs. LINCOLN, Horticulture Internationale, Parc Leopold, Brussels, showed *Odontoglossum crispum* *Le Czar*, a fine flower, with large blotch on the sepals; *O. c. Morning Star*, spotted and tinged with rose in a very peculiar manner; and *O. c. d'Allemagne*, a finely blotched form.

DE B. CRAWSHAW, Esq., Rosefield, Sevenoaks (gr. Mr. S. Cooke), showed *Lælia purpurata* (Mrs. De B. Crawshaw), a distinct white flower with violet-purple markings.

H. DUCE, Esq., Circus Road, St. John's Wood, showed hybrids of *Cypripedium bellatulum*, &c.

Mr. JAS. O'BRIEN, Harrow-on-the-Hill, showed *Masdevallia angulata* (Botanical Certificate), a fleshy, purple and yellow flower of the *M. argutaria* class.

Mr. JAS. McBEAN, Cooksbridge, showed a group of *Odontoglossum crispum*, some rose-tinted varieties, others finely spiked.

A. H. MILTON, Esq., Clifton, showed a finely flowered *Cattleya Mossie*.

G. H. BIRD, Esq., West Wickham (gr., Mr. Reddan), sent *Odontoglossum crispum* Ronnyanum.

Mrs. WINGFIELD, Amptill (gr., Mr. Empson), showed *Cattleya Mossie* Wingfieldorum, with curiously splashed flowers.

AARTHA HAY, Esq., sent a fine *Cattleya Warszewiczii*; and Mr. J. W. MOORE, Eldon Place Nursery, Bradford, showed the singular *Vanda pruinula* with white flowers and purple lines on the lip, in the way of *V. cristata*.

Fruit Committee.

Present: Philip Crowley, Esq., chairman; and Messrs. T. F. Rivers, J. Willard, J. Cheal, A. F. Barron, J. Wright, A. Dean, O. T. Miles, Geo. Woodward, G. Wythes, H. Balderson, J. Smith, F. Q. Lane, G. Norman, and R. Fife.

An Award of Merit was recommended to a seedling Cucumber, The Keeper, fruits of which were shown by Mr. S. MORTIMER, Rowledge Nurseries, Farnham Royal. It is the progeny of a cross between Improved Telegraph and Duke of Edinburgh, and the fruits are rather loog, deep green in colour, slightly rough, and spined, and altogether of distinct and good appearance. Mr. MORTIMER also showed excellent fruits of Sensation Cucumber, a variety distinguished by an Award of Merit in 1896.

A Cultural Commendation was awarded to Mr. J. HUDSON, gr. to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, or a box of sixteen ripe fruits of Lord Napier Nectarine, gathered from a tree bearing a crop of 450 fruits. Mr. HUDSON had also dishes of Annonay Cherries from a south wall in the open.

Mr. E. BECKETT, gr. to Lord ALDENHAM, Aldenham House, Elstree, exhibited a fine broad-leaved Spinach, named The Carter, and a Cultural Commendation was deservedly given.

A variety of Cabbage, named Beaconsfield, shown by Mr. J. PROWSE, Hallbound Gardens, Beaconsfield, was recommended for an Award of Merit.

Mr. W. J. EMPSON, gr. to Mrs. WINGFIELD, Amptill House, Amptill, obtained an Award of Merit for a seedling Melon, a cross between Anthony's Favourite and Easton Castle. The seedling is a white-fleshed fruit of good flavour.

Lecture on Hybrid Orchids.

In the afternoon, Dr. MASTERS, F.R.S., who occupied the chair, proceeded to read the names of the candidates for Fellowship of the Society, there being as many as 108 names—probably a larger number than has been submitted at any previous meeting of the Society. When these candidates had been duly elected, Mr. O'BRIEN commenced a paper on "Hybrid Orchids" by referring to a previous lecture upon hybrid Orchids, given by Mr. HARRY VEITCH and Mr. C. C. HURST before meetings of the Royal Horticultural Society, and since published in the Society's journal. Mr. O'Brien therefore preferred to treat the subject entirely from the standpoint of culture. Speaking of the value of the garden hybrids, it was claimed that the hybridist had raised a large number of showy kinds that bloom at all seasons of the year. In this latter particular, garden hybrids had an advantage over natural ones, because species of Orchids that are cross-fertilised in their native habitats are necessarily pollinated by species that are in flower at the same season of the year. The hybridist on the other hand, by reason of the artificial conditions of Orchid-culture inducing many plants to bloom out of their proper season, was enabled to cross his plant with another one that naturally blossoms at another period of the year. Thus, in addition to new tints of colour, and modifications in form, the hybridist does obtain plants that bloom between seasons—a very decided advantage. The hybrid may generally be expected to bloom at about the mid-season of blooming of the seed-bearing plant.

But good though the general effect of hybridisation has been, the practice has not proved an unmixed blessing. In *Cypripediums*, for instance, many of the hybrids that have been raised and put into commerce can only be described as "weeds" of the type they represent, and Mr. O'Brien very properly declared that the Orchid cross-breeder should exercise the greatest care in selecting seedlings for distribution, and should, after taking full notes, and, if possible, drawings, be content to destroy all seedlings of inferior characteristics in the same way as is done by raisers of florists' flowers generally.

Passing to the theory of insect-fertilisation of Orchids, Mr. O'Brien said that observers in the tropics had generally little faith in this theory in the early stages of their observation; but the lecturer believed that though Nature provided the plants with means for self-fertilisation it was only as a last resource. Observers had noticed that the seed-capsules had swelled where there had been no possibility of insect intrusion, and had been thereby misled. Mr. O'Brien said that in most cases he believed that there was no good seed in such capsules, but they had swelled owing to the stigmatic surface having been irritated by dust, grit, or other foreign substance. He referred to an experiment he had made with an *Odontoglossum* and with other Orchids, when, after having irritated the stigmatic surface by brushing, the capsules had swelled normally, but they contained no perfect seed.

Passing to the actual work of hybridising, Mr. O'Brien said that of the seed sown there was a larger proportion of plants raised by the hybridist than occurred naturally, when from many causes which he specified the waste of seed was enormous. Orchid raisers had two disadvantages—they frequently sowed seeds which the lecturer believed were not capable of germination, and there were our long, sunless, foggy winters. Though the hybridist had been successful

with very many species, there were some which resisted every attempt of his. *Laelia Digbyana*, for instance, yields no seeds itself, and cannot be hybridised. The seed capsules of Orchids, when they become heavy, should be suspended with pieces of tape, so that the circulation of sap may not be hindered by the stalk becoming bent. The capsules of Orchids grown in a glass-house do not split at so early a period as occurs naturally, and it is thought that the seeds are often ripe before dehiscence takes place. The seeds should therefore be sown at once, at whatever season they ripen, as the risk of retaining them would be greater than that attending the sowing of them, even in winter.

In the matter of sowing the seeds, Mr. O'Brien quoted some remarks of Mr. JNO. SEDEN, to the effect that although he had tried many methods he had yet discovered none that had greater advantages than that of sowing the seeds upon the surface of the potting material in which a healthy plant of the species was growing. A plant that was suspended, or at least one that was somewhat near to the glass, should be selected for this purpose. The compost should be sweet, and if covered with growing sphagnum-moss, this should be cut back. The seeds should then be sown thinly over the surface, and the greatest care afterwards exercised in the matter of watering, that the seeds be not washed away or even disturbed.

A fruitful cause of failure was the growth of moss or other low vegetable life over the surface of the compost, and this was more troublesome when fresh material had been used. Sterilisation of compost was therefore desirable, and it should be done with boiling water rather than by baking. As soon as it could possibly be done, the seedling plants should be pricked off into a sterilised compost, and placed early into tiny pots singly. Ventilation, especially in spring, needed great care. The opening of top ventilators had, he believed, killed many valuable plants. On cold days it was much better to keep the top ventilators closed, or nearly so, and thus create less occasion for firing. Mr. O'Brien thought a 1-foot swing ventilator at either end at the top of the house was sufficient.

Mr. C. C. HURST, in referring to the instances of seed-capsule formation in the absence of pollination, cited by Mr. O'Brien, described them as very remarkable.

Mr. DE B. CAWSHAY said that he had a fine plant of *Cymbidium Lowianum* which annually produced a spike of more than twenty flowers. Each year from every flower there was produced a capsule. Was it possible that an insect traversed every flower each year? He thought not. The capsules fell away in about five or six weeks.

After some remarks by Mr. R. A. ROLFE upon the general question of Orchid hybridisation,

Dr. MASTERS also referred to the question of capsule-swelling from irritation. He thought the circumstance would not appear so marvellous if they remembered that the capsule was part of the mother-plant; and in cases such as were mentioned, there had been not the least effect made upon the seeds or rather upon the ovules. Such phenomena were common in many other very different plants. Some species of *Passifloras* had been found incapable of fertilisation by their own pollen; they invariably required pollen from another species.

LINNEAN.

JUNE 2.—At the last meeting of the Society on the above date (Mr. ALBERT D. MICHAEL, Vice-President, in the Chair), Messrs. Edward Charles Horrell and George Nicholson were admitted, and Mr. Eugene Frederick Augustus Obach was elected a Fellow. The Chairman announced that the President had nominated Messrs. William Carruthers, Frank Crisp, Albert D. Michael, and Dr. H. D. Scott, to be Vice-Presidents for the ensuing year.

Mr. E. Salmon read a paper entitled "A Revision of the Genus *Synblepharis*." This genus of mosses, he said, as founded by Montagne in 1839, had proved too narrow, through the limits imposed by certain peristome characters, and he was of opinion that Mitten's later emended description should be accepted. Montagne had founded the genus for the Mexican *S. helicophylla*, and to this species Mr. Salmon would refer the Indian moss, *S. himalayana*, Mitten (*Didymodon vaginatum*, Hook.), as well as *S. Chrismeri*, C. Muill., and *S. asiatica*, Besch., which were found not to possess the characters by which they had been separated from *S. helicophylla*, Mont. *S. microcarpa*, C. Muill., he considered to be a variety of *S. helicophylla*, Mont.; and two new varieties of that species were described—*vars. tenuis* and *macrospora*—the latter remarkable for its large spores, 35–45 μ . In the course of his remarks on other species of the genus, Mr. Salmon observed that *S. fragilis*, Mitt., is peculiar in the histrostructure of the leaf, and *S. secretana*, Mitt. (doubtfully included in the genus in the absence of fruit), in the papillose-cells. *S. circinata*, Besch., and *S. usambarica*, Broth., he would exclude from the genus, and pointed out that the former species, from Grande Comore and La Réunion, comprises two distinct mosses. Mr. Charles Penry Wright, A.L.S., offered some critical remarks.

Surgeon-Captain Cummins, F.L.S., read a paper "On the Food of the Uropoda." The nature of the food of these mites, which belong to a highly-specialised genus of the Gamasinae, has long been a puzzle even to those who have paid particular attention to their organisation. From careful experiments and observation, the author of the paper had come to the conclusion that amongst the organisms on which the Uropoda live were many species of bacilli, including the *Potato-bacillus* and the *earth-bacillus*. Yeast-cells were rapidly devoured, as also were Micrococci. He had little doubt that they consumed the gonidia of fungi, for species of

Penicillium and *Mucor* never appeared in the boxes which contained mites in large numbers; otherwise they were commonly present. Mr. A. D. Michael, in criticising the paper, pointed out the distinguishing characters of the Uropoda as compared with others of the Gamasinae, and especially the peculiar form of the mandibles, which suggested a different mode of feeding to that adopted by other mites. He considered Surgeon-Captain Cummins' observations on the subject a useful contribution to knowledge.

Mr. C. B. Clarke, F.R.S., F.L.S., gave a summary of a paper "On the Subdivision of Biological Areas in India," and in the course of his remarks mentioned some interesting facts in connection with plant-distribution in the Indo-Oriental region. Dr. Otto Stapf, A.L.S., in commenting on the paper, expressed the opinion that the limits of the subdivisions proposed were natural, and might well be accepted by botanists.

HORTICULTURE AT THE ROYAL CORNWALL AGRICULTURAL SHOW.

JUNE 8.—This show, held at Penzance on the above date, was favoured both by the beautiful weather and the magnificent view of Mount's Bay obtained from the grounds. Of course, gardening does not usually receive very much space or attention at a show of the nature of the Royal Cornwall, still, the tent devoted to it was the largest on the ground, being over 200 feet long.

The most interesting exhibits were those not for competition. The competitors for prizes were very few in number, and their exhibits mostly not of a high standard. In scarcely a single class were there more than two entries, and in many cases one exhibitor had a class to himself.

The prizes for stove and greenhouse plants were chiefly won by Mr. W. MAGGE, gr. to E. HAIN, Esq., St. Ives; Mr. G. BRAUN, gr. to J. BRANWELL, Esq., Beryann; Mr. John Roberts, gr. to Mrs. HENRY, Tredeanah, Penzance; Mr. GILL, gr. to P. T. CHIAVIN, Esq., Paul; and Mr. KING, gr. to W. BICKFORD SMITH, Esq., Trevarne. Among the cut flowers there was little of interest.

Classes 43, 44, and 45, devoted to Roses, were without entries, and the same held good of Class 34, devoted to Carnations and Picotees. Rev. R. W. AITKIN, of Paul, took most of the prizes for Pansies, including a Silver Medal for the best Pansy in the Show (Col. M. R. O. Buchanan being the variety shown). The bouquets, sprays, and arrangement of cut-flowers for table decoration, showed little taste, though the flowers used (largely Irises) lent every facility for the production of graceful effect.

The fruits and vegetables were of a much higher order than the flowers. The exhibits of Mr. George Rowe, gr. to Rev. Canon HOCKIN, of Hayle, were especially good. Mr. SCOBLE, of Malpas, and Mr. F. CUAVE, of Lelant, also showed excellent fruit and vegetables, and divided the prizes left by Mr. Rowe.

Among the nurserymen's exhibits, many interesting pot plants, including some well-grown Tea Roses, were shown by Messrs. VEITCH of Exeter, JARMAN of Chard, and Messrs. Hodge of St. Austell.

The total effect of the show, however, can hardly be considered as important in its mirroring of or action on Cornish horticulture.

THE GRAND YORKSHIRE GALA AT YORK.

JUNE 15, 16, 17.—In pleasing contrast to the last opening day of this Show, the morning broke bright and fine, and the possibility of a recurrence of last year's disaster seemed very remote. The exhibits, thanks, no doubt, to the liberal treatment of the unfortunate exhibitors last year, were equal in number and quality to those of any previous shows, with few exceptions.

On entering the first tent one was at once attracted by the very interesting exhibit of Messrs. SUTTON & SONS, of Reading, which included select strains of Gloxinias, also samples of Tomatoes, fruiting in pots, and Peas in pots bearing a good number of pods. This exhibit was quite one of the features of the Show.

On the right of the first tent Messrs. FISHER, SON & SIBBAY, nurserymen, Sheffield, staged a large representative collection of *Rhododendron* hybridum in bloom, arranged in the form of a bank; also from the same firm was staged a choice collection of Japanese Acers, tree Ives, &c., besides *Crotons*, *Dracenas*, and other indoor plants, the whole forming a attractive exhibit. Following these was a magnificent group of *Caladiums* and *Legoias* from Messrs. PEEN, of Norwood. Messrs. JAS. VEITCH & SONS, Ltd., also staged in the same tent a charming group containing some grand specimens of *Caladiums*, Tree Carnations, *Dracenas*, *Streptocarpus* of their raising, also a pretty little lot of *Rhododendrons javanicum* and *jasmiflorum*.

Messrs. CUTBUSH & SON, showed a most interesting group of Carnation de la Malmaison varieties, of Ericas, of Turner's Crimson Rambler Rose, and other plants, the whole being arranged with much good taste; and more especially noticeable was a batch of Carnations, Princess of Wales.

Messrs. R. SMITH & CO., Worcester, exhibited a nice lot of Clematis, trained, and these were interspersed with cut specimens of herbaceous plants and *Bambusa gracilis*.

On the centre stage was grouped the usual fine display of

specimen greenhouse and stove plants, the leading exhibitor in this class being Mr. J. CYRER, nurseryman, of Cheltenham; the Marquis of ZETLAND, Aske Hall (gr., Mr. G. P. Letts); H. HARRISON BROADLEY, Esq., Welton House, Brough (gr., Mr. C. Lawton); Mrs. G. PEASE, Woodside, Darlington (gr., Mr. J. McIntyre).

The Orchids were especially fine, and the finest group in this class, not in competition, was that from the nurseries of Messrs. HUGH LOW & Co., Clapton, London, N. This group contained grand specimens of Cattleya Mossiae, Laelia purpurata, &c.

Messrs. SANDER & Co., nurserymen, St. Albans, also exhibited a batch of their new Acalypha Sanderi in their group.

The groups of plants, always a feature at this northern show, were as usual up to the standard of excellence. The premier honours of the year went to Mr. MEE of Nottingham, whose exhibits contained grand Crotons, also a choice lot of Odontoglossum crispum; and the 2nd prize went to Sir James RECKETT, Bart., Swanland Manor, Brough (gr., Mr. George Wilson). This last-named group was most artistically arranged. The miniature cascade and Water-Lilies were the chief new features in it. The other groups, without exception, were likewise meritorious.

The groups of Orchids were fine. In specimen Orchids the premier Awards went to Mr. J. CYRER of Cheltenham, and other good exhibits came from E. B. FABER, Esq., Harrington; W. B. BURKENSIAW, Esq., Hessel; JOHN ROBSON, Esq., T. STATTER, Esq., and J. E. WATERHOUSE, Esq.

Messrs. CLIBBARD of Altrincham showed a grand bank of cut flowers of herbaceous plants in great variety.

The Pelargoniums, always a feature here, were this year quite up to the usual standard of excellence. Mrs. TETLEY, of Leeds (gr., Mr. J. Eastwood), and J. T. HINGSTON, Esq. (gr., Mr. McIntosh), as usual, being keen competitors in the chief classes. In the class for twelve show varieties Mr. McIntosh was 1st. Other exhibitors of Pelargoniums and zonals were Messrs. H. PYBUS, R. SIMPSON & Son, Selby; and Miss WHARTON.

J. T. HINGSTON, Esq., was 1st for six specimen Fuchsias, Mrs. TETLEY 2nd, and Miss WHARTON 3rd. All of these exhibits were good ones.

The Roses were not especially good, and the 1st prize for seventy-two was taken by Messrs. J. & A. MAY, nurserymen, Bedale. Mr. GEO. MOUNT, nurserymen, of Canterbury, also exhibited.

In the groups of Carnations, Lord BARNARD was 1st, with a nice lot of Souvenir de la Malmaison.

Messrs. PERKINS, of Coventry, and Messrs. WABSTEAD, of Sunderland, were the chief exhibitors of bouquets and floral devices, Messrs. PERKINS & Son taking the 1st prize in each section.

Herbaceous cut flowers were shown in great variety, and of very excellent quality—better than was expected.

Mr. G. YELD, of Clifton Cottage, exhibited some pleasing Hemerocallis, Iris, &c., of his own raising.

Messrs. LITTLE & BALLANTYNE, Carlisle, included in their exhibit the Golden Holly, named Golden King, shown at the Temple, and this was awarded a First-class Certificate.

In table-plants, Mr. J. C. MEE was 1st; E. B. FABER, Esq., 3rd.

FRUITS.

The chief features on entering the fruit-tent were the tables of fruit, for which there were four entries, the 1st prize went to Lord BARNARD (gr., Mr. Tullett); the 2nd prize was awarded to Earl of HARRINGTON (gr., Mr. Goodacre); the 3rd going to Sir JOS. PEASE, Bt. (gr., Mr. McIntosh). The awarding of the 2nd prize seemed to be the cause of some comment.

The fruit generally was very fine for this time of the year, and the chief prizes in the various classes were taken by Sir JOS. PEASE, Bt., the Earl of HARRINGTON, Lord H. OSWALD, &c.

MARKETS.

COVENT GARDEN, JUNE 16.

FRUIT.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Apples, Tasmanian, cases, various, comprising Sturmer, N. Y. Pips, Adams' Pearmain, Sc. Nonpareil, F. Crabs, &c. ...	18 0 20 0
Apricots, per box ...	1 0 2 0
Bananas, bunch ...	6 0-10 0
Cherries, per box ...	1 0 2 6
— sieves ...	7 6-8 6
— pecks ...	6 6-8 6
Figs, per dozen ...	8 0-6 0
Grapes, English, Hambro, lb. ...	1 0 2 6
Grapes, Channel Isles, per lb. ...	1 3 2 0
— Muscats, per lb. ...	2 6 5 0
Gooseberries, per sieve ...	2 6-3 6
Melons, each ...	1 6-2 6
Nectarines, doz. ...	4 0-12 0
Peaches, per doz. (according to size) ...	9 0-18 0
— Second quality ...	4 0-8 0
Pines, each, from ...	3 6-6 6
Strawberries, per lb. ...	2 0-4 0
— 2nd quality ...	1 0-2 0
— Southampton, baskets ...	6 0-10 0

REMARKS.—It is said that the Tasmanian Apples now on sale are the last of the season. Of Apricots, but few can be described as good. Bananas are easier in price. Gooseberries plentiful. Pine-apples appear to be getting towards the end of their season. Strawberries are coming in various packages, and from various sources. Southampton have commenced, but sunshine to colour them is lacking. Foreign Asparagus is nearly over, and only the very large sticks are worth sending. Vegetable marrow may be daily expected to get cheaper, also Peas; and a few days of sunshine will bring them on rapidly, and put some corn in them.

POTATOS.

Fairly large supplies of New Potatoes; trade steady at following rates:—Jersey New Potatoes, 8s. to 8s. 6d.; Cherbourg and St. Malo, 7s. to 7s. 6d.; Canary Kidneys, 8s. to 9s.; Lisbon Rounds, 6s. to 7s. per cwt.; Old Potatoes, 100s. to 150s. per ton. John Bath, 32 and 34, Wellington Street, Covent Garden.

CUT FLOWERS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Arums, 12 blooms ...	3 0-4 0
Azalea, doz. sprays ...	0 6-0 9
Bluebells, doz. bun. ...	0 9-1 0
Bougardias, p. bun. ...	0 6-0 8
Carnations, pr. doz. blooms ...	1 6-3 0
Cowslips, doz. bun. ...	1 0-1 6
Eucharis, per dozen ...	3 0-4 0
Gardenias, per doz. blooms ...	1 6-3 0
Gladioli, white, doz. sprays ...	0 8-0 9
Lilac, Fr., p. bunch ...	3 6-4 0
Lilium Harris, per dozen blooms ...	3 0-4 0
Lily of the Valley, dozen sprays ...	0 6-1 0
Maidenhair Fern, per 12 bunches ...	4 0 8 0
Mignonette, 12 bun. ...	2 0-4 0
Narcissus, various, per dozen bunches ...	1 0-2 6
Orchids:—	
Cattleya, 12 bms. ...	6 0-9 0
Odontoglossum crispum, 12 bun. ...	2 0-4 0
Pelargoniums, scarlet, per 12 bun. ...	4 0-6 0
— per 12 sprays ...	0 4-0 6
Primroses, per 12 bunches ...	0 9-1 0
Roses, Tea, per doz. — yellow (Pearls), p. dozen ...	1 0-2 0
— pink, per dozen ...	3 0-6 0
— Safrano, p. doz. ...	1 0-2 0
— red, per dozen ...	2 0-4 0
Stephanotis, doz. sprays ...	2 0-3 0
Tuberose, 12 blms. ...	1 0-1 6
Tulips, 12 bunches ...	3 0-6 0
Violets, 12 bunches ...	0 9-1 0
— Farms, French ...	2 0-3 6
Wallflowers, 12 bun. ...	2 0-3 0

ORCHID-BLOOM IN VARIETY.

PLANTS IN POTS.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Adiantums, p. doz. ...	4 0-12 0
Aspidistras, p. doz. ...	12 0-30 0
— specimen, each ...	5 0-15 0
Azalea, per dozen ...	24 0-36 0
Calceolarias, per doz. ...	9 0-12 0
Coleus, per doz. ...	4 0-6 0
Crassula, per doz. ...	12 0-18 0
Dracenas, each ...	1 0-7 6
— various, p. doz. ...	12 0-24 0
Ericas, various, per dozen ...	12 0 30 0
Evergreen shrubs, in variety, p. doz. ...	6 0-24 0
Ferns, small, p. doz. ...	1 0-2 0
— various, p. doz. ...	5 0 12 0
Ficus elastica, each ...	1 0-7 6
Fuchsias, per doz. ...	6 0-9 0
Foliage plants, per dozen ...	12 0-36 0
Heliotropes, p. doz. ...	7 0-9 0
Hydrangea various per doz. ...	10 0-24 0
Liliums, various, per dozen ...	12 0-30 0
Marguerites, p. doz. ...	6 0-12 0
Mignonette, p. doz. ...	4 0-6 0
Palms, various, ea. ...	2 0-10 0
— specimens, ea. ...	10 6-84 0
Pelargoniums, doz. ...	12 0-18 0
Rhodanth, per doz. ...	5 0-6 0
Scarlets, per doz. ...	4 0-8 0
Spiraea, per dozen ...	6 0-9 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

s. d. s. d.	s. d. s. d.
Asparagus, English, natural, home-grown, p. bun. ...	3 0-4 0
— Worcester ...	1 3 2 3
— English, Spruce, bundles ...	0 6 —
— Various other English ...	1 0-1 6
— Foreign, Victoria, large ...	7 0 —
Artichokes, Globe, per doz. ...	0 6-1 6
Beans, English (Dwarf), lb. ...	0 6-0 9
— Channel Islands, per lb. ...	0 6 —
— French, flats ...	2 6-3 6
Beetroot, per doz. ...	1 0 —
— p. tally of 60 ...	4 0-5 0
Cabbage, open, doz. ...	0 6 —
— open, p. tally ...	1 0-2 0
— bush ...	0 4-0 6
— pots, open ...	0 6 —
Cauliflowers, English, per dozen ...	3 6-5 0
Cress, doz. punnets ...	1 6 —
Coleworts, or Greens, per bushel ...	0 3-0 4
Carrots, New, bunches, per dozen ...	3 6-7 0
— Round, per bunch ...	0 6 —
— Bedford, New, 12 in a pot ...	9 0 —
Celery, old, per bundle ...	1 0 —
— new ...	1 6 —
Cucumbers, p. doz. ...	2 0-3 0
Endive, new, p. doz. ...	1 5-1 7
Garlic, per lb. ...	0 4 —
Horseradish, foreign per bundle ...	0 9-1 0
Leeks, new, dozen bunches ...	2 0-2 6
Lettuce, Cabbage, home-grown, per doz. ...	0 9-1 0
Lettuce, Cos, score ...	0 8-1 3
— Paris Cos, home-grown, per dozen ...	0 10-1 0
Marrows, Veg., per dozen ...	5 0-6 0
Mint, per dozen bunches ...	3 0 —
Mushrooms, per lb. ...	0 6-0 9
Onions, Egyptian, bags ...	5 0-6 0
— Green, per doz. bun. ...	1 6-2 6
Parsley, per dozen bunches ...	1 6-2 0
Peas, English, per bushel ...	6 0-7 0
— Sunrise, bushel ...	10 0 —
— French, flats ...	4 0-6 0
Potatoes, Channel Isles, Kidneys, cwt. ...	8 0-9 0
— Malta Kidneys, per cwt. ...	8 0 10 0
— Canary Kids, per cwt. ...	8 0-10 0
— Lisbon Round, per box, all ...	3 0 3 6
Radishes, Round, breakfast, per dozen bunches (home-grown) ...	1 0-1 3
— per tally ...	4 0 —
Rhubarb, doz. home-grown, natural ...	1 6-2 6
Salad, small, punnets, per dozen ...	1 3 —
Shallots, new bunches, per dozen ...	2 0 —
Spinach, Spring, per bushel ...	0 6-1 0
Tomatoes, Eng. lb. ...	0 7-0 7 1/2
— Channel Isles, per lb. ...	0 5 1/2-0 6
Turnips, new French, per bunch ...	0 5-0 6
Watercress, p. doz. bunches ...	0 4-0 8

SEEDS.

LONDON: JUNE 15.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that there were but few buyers on to-day's seed market, and the business doing was on a very restricted scale. Clover seeds just now are quite neglected. For Mustard and Rape seed full prices are asked. There is no change in Canary seed, but Hemp seed attracts increased attention. The sale for Peas and Haricots is slow on former terms.

CORN.

AVERAGE PRICES OF BRITISH CORN (per imperial qr.), for the week ending June 11, and for the corresponding period of 1897, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1897.	1898.	Difference.
Wheat ...	s. d. 27 4	s. d. 45 4	+ 18 0
Barley ...	s. d. 22 8	s. d. 25 8	+ 8 0
Oats ...	s. d. 17 11	s. d. 20 11	+ 3 0

(Remainder of Markets carried forward to p. ix.)



[The term "accumulated temperature" indicates the aggregate amount, as well as the duration, of degrees of temperature above or below 42° Fahr. for the period named: and this combined result is expressed in Day-degrees—a "Day-degree" signifying 1° continued for twenty-four hours, or any other number of degrees for an inversely proportional number of hours.]

Districts.	TEMPERATURE.					RAINFALL.		BRIGHT SUN.		
	Above (+) or below (−) the Mean for the week ending June 11.	ACCUMULATED.				(More +) or less (−) than Mean for the Week.	No. of Rainy Days since January 2, 1898.	Total Fall since Jan. 2, 1898.	Percentage of possible Duration for the Week.	Percentage of possible Duration since Jan. 2, 1898.
		Above 42° for the Week.	Below 42° for the Week.	Above 42°, difference from Mean since January 2, 1898.	Below 42°, difference from Mean since January 2, 1898.					
Day-deg.	Day-deg.	Day-deg.	Day-deg.	10ths Inch.	Inch.					
0	2 +	81	0 +	88	224	3 —	122	26.8	40	28
1	1 +	87	0 +	65	222	3 —	92	11.3	37	30
2	2 +	90	0 +	101	216	3 —	83	8.8	35	29
3	2 +	107	0 +	36	207	7 +	78	8.6	39	32
4	3 +	112	0 +	28	215	4 —	77	8.0	47	30
5	3 +	117	0 +	60	243	1 +	75	9.1	34	32
6	2 +	95	0 +	91	217	4 —	105	17.1	50	34
7	2 +	108	0 +	98	244	5 —	88	14.6	52	36
8	2 +	110	0 +	73	156	2 —	86	13.1	57	38
9	1 +	95	0 +	88	168	2 +	111	15.7	36	32
10	0 aver	97	0 +	105	134	0 aver	85	15.1	45	34
11	1 —	98	0 +	190	93	4 +	95	10.7	54	40

The districts indicated by number in the first column are the following:—

0, Scotland, N. Principal Wheat-producing Districts—1, Scotland, E.; 2, England, N.E.; 3, England, E.; 4, Midland Counties; 5, England, including London, S. Principal Grazing, &c., Districts—6, Scotland, W.; 7, England, N.W.; 8, England, S.W.; 9, Ireland, N.; 10, Ireland, S.; * Channel Islands.

NOTICES TO CORRESPONDENTS.

ASTER SEEDLINGS: H'allis. The seedlings sent show all the signs of damping-off. When received they were soft and rotten at the surface of the soil, while the roots and foliage looked healthy. The damping off fungus, *Phytophthora semperivi*, was found, as well as other fungi, which generally accompany it and assist in killing plants. This opinion is further supported by your observation that both planted-out seedlings and those left in the seed-bed were equally diseased. An article in last week's *Gardeners' Chronicle* will probably give you the hints you require for prevention in future.

BLIGHT ON GRAPE VINES: Claptonian. The Vine is infested with mealy-bug. Pick them off by hand as far as possible, and touch the woolly masses with a camel-hair pencil dipped in methylated spirits.

BULBS, &c., INFESTED BY BULB-MITE: G. A. These are certainly suffering from Bulb-mite to an extensive extent. We will publish your communication shortly.

CARBOLIC ACID AND SEWAGE: G. H. A distinguished chemist says, that any addition of antiseptics to the soil arrests, if it does not altogether stop, the nitrification; or, put more simply, the conversion of ammonia into nitric acid by the instrumentality of microbes or bacteria. His authority for this is Professor Robert Warington, F.R.S. one of the leading authorities on matters connected with sewage and its disposal and utility. Carbon-bisulphide, recommended and used so successfully in the prevention and cure of Phylloxera in Vines, chloroform, and other like compounds, have the same effect. It is doubtful if even the addition of lime or any other alkaline substance would restore the sewage to its primitive utility. T. B.

CARNATION: T. H. S. Your white-flowering seedling is pretty, and the habit of free-blooming in the measure you describe should make it a good border plant.

CARNATIONS DISEASED: *Henley*. The plants sent all show attack by the Carnation Rust (*Uromyces caryophylli*). The greyish blisters are the first stage, the brown spots on dead leaves are a later stage, in which the spores are given off. At present the spores produced are those which germinate at once, and rapidly spread the disease; a later form of spore survives the winter and propagates the fungus next season. Plants and shoots badly attacked should be cleared out at once. The disease has been proved to be kept in check by use of Bordeaux Mixture (see this paper of August, 1897), if the first spraying be made early. Sulphide of potassium, or liver of sulphur, $\frac{3}{4}$ oz. to each gallon of water, is also considered good. These are, however, checks to the disease, not true cures. You should be able to get suitable varieties, which will be more proof against this fungus. Many growers consider it advisable not to wet the foliage too much in watering; wet foliage and scanty ventilation aid the spread of the fungus.

CHRYSANTHEMUM FUNGUS: *W. C.* Yes; burn affected plants, and syringe the remainder with liver-of-sulphur 1 oz. to a gal. of water.

CORRECTIONS.—In answer to correspondents, p. 368, in our last issue, read sulphide of potassium instead of sulphate of potassium, &c., inadvertently printed; and in Mr. Fish's article on Asparagus, p. 367, for 472 lb., read 4½ lb.

CROTON: *J. P.* The leaves are wretchedly thin and poor. We cannot say definitely what has caused this, but it is purely a matter of cultivation. See that your practices are brought into as close agreement as possible with the general principles of stove-plant cultivation. When taking cuttings, or "ringing" top-growths, take care to select strong ones. Finally, beware of a too liberal use of chemical manures, and avoid checks to the growth of the plants from any cause.

DISEASED IRIS: *Clifton*. The disease is due to a leaf-spot fungus, probably *Helminthosporium gracile*, or some allied form. The elongated spots on green leaves become open cracks later, and give off greenish-brown spores. The disease begins on the young sheaths which become discoloured and die, hence the plants suffer from want of nourishment. The bulbs look quite healthy; spraying with Bordeaux Mixture (see *Gardeners' Chronicle* of last August), will probably keep the fungus in check, and allow the plants to develop in a healthy way.

EXUDATION OF SAP FROM SWEET-CHESTNUT TREES: *R. T.* The flow of sap will shortly cease, and no harm will be done. If the bark then heals over, all traces will be obliterated in a year or two by new growth of bark.

GLOXINIAS: *A. C.* The leaves sent are exceedingly large and luxuriant, the largest being 13 inches long by 8½ inches wide. We think we have seen Gloxinia leaves as large as this before, but do not remember whether the plants were two or more years old. After all, it may not be advisable to cultivate the plants so strongly, for thereby a certain degree of coarseness is obtained. However, as yours carry fifty to sixty flowers each, we should imagine them to be very handsome specimens.

HYDRANGEAS: *Anxious*. Green shoots taken off with a thin heel of last year's wood strike readily in bottom-heat of 80° in a frame. Half-ripened shoots furnished with flower-buds may be taken off at the third or fourth joint, and after being stripped of the last pair of leaves may be inserted singly in 60's, or to the number of six round a 6-inch pot. The cuttings strike well in sandy-loam if inserted firmly about 1½ inches deep, and afforded bottom-heat of 75°; but the tops must be kept cool, with the lights tilted night and day. Such plants if repotted when rooted, and once afterwards, kept in a sunny frame or pit well exposed to the sun, and treated generously as regards manure-water, syringing, and damping down, will make nice flowering plants by the middle of October. They must at that season be gradually brought to a state of rest by withholding water, and affording plenty of air; and during the winter the plants should be plunged in a bed of leaves in a cold pit or frame. They will throw good heads of bloom the next winter and spring if forced, and should not be repotted till blooming is past.

IRIS WITH FUNGUS: *Xiphium*. Your Irises are affected by a smut fungus. Spraying with Bordeaux Mixture in early spring might arrest, though it would not cure the malady.

LABURNUM OF DIFFERENT COLOURS: *R. M.* The variety with pink flowers is *Cytisus Adami*.

LIME-TREES: *X. Y. Z.* We do not suppose that anything you can do will preserve the lives of the trees amidst such unwholesome surroundings, and you had better advise the substitution of Poplar-trees, viz., Abele, black, white, and Canadian, and as a shrub that defies smoke, soot, and most kinds of fumes, the common Elder and its several yellow and white variegated forms. These trees and shrubs are found to succeed in the Leazes Park, Newcastle-on-Tyne, where the conditions are nearly similar to those you exist under.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*R. P.* A form of *Papaver Rhæas*, called Shirley Poppy. There are single and double-flowered varieties. — *Wm. W.* 1, *Phrynum variegatum*; 2, *Aërides crispum*; 3, *Chysis laevis*; 4, *Glechoma hederacea variegata* (variegated Ground Ivy); 5, *Festuca ovina glauca*; 6, one of the garden forms of *Pelargonium grossularifolium variegatum*. — *H. Escla.* *Agaricus* (*Pholiota*) *durus*, not uncommon. It is not edible. *M. C. C.*—*S. D.* *Muscari comosum monstrosum*. — *W. B., Stamford.* 1, *Isolepis gracilis*; 2, *Anthericum lineare variegatum*; 3, *Cureuligo recurvata*; 4, *Verbascum phoeniceum*. — *A. C. M.* 1, *Dendrobium moschatum*; 2, *Dendrobium infundibulum*; 3, *Angreum modestum*. — *J. B., Wilts.* *Dendrobium Bensoniae*. — *J. A.* *Cypripedium Rothschildianum*, *Peperomia arifolia*, *Angreum modestum*. — *No name.* 1, *Prunus Padus*; 2, *Choisya ternata*; 3, *Diervilla* (*Weigela*) *hortensis*. — *T. S.* *Mespilus germanica*. — *F. E. F.* *Cytisus Scoparius*, pale form. — *P. C. P.* 1, *Philadelphus coronarius*; 2, *Heuchera sanguinea*; 3, *Veronica teucrium*. — *J. J. F.* A form of *Rhododendron ferrugineum*. — *A. F. S.* *Fraxinus Ornus*. — *W. H. M.* *Syringa Josikea*, *Pseudotsuga Douglasii* var. *Stairi*. — *H. D. W.* 1, *Cerithia* sp.; 2, apparently the wild Radish; 3, *Lepidium Draba*; 4, *Symphytum*, probably; 5, *Echium vulgare*; 6, *Epilobium*, no flowers. — *D. McDonald.* *Cytisus Adami*. 1, *Planera Gmelini*; 2, 3, next week; 4, *Iris graminea*; 5, *Lælia purpurata*.

NERIUM OLEANDER: *Anxious*. Propagation is by means of cuttings of last year's shoots in spring and early summer. The plant roots as readily as a Willow in earth, sand, or water, with no more heat than that of a greenhouse. If you can layer a big piece into a flower-pot you will secure a flowering-plant in a twelvemonth. The layering may be done at the present season.

ODONTOGLOSSUM - HOUSE: *Amateur*. Wood would answer for the walls of such a temporary house as that you require; and in case of a very cold winter, you might protect the wooden walls with litter or earth. The second-hand hot-water pipes, if sound, may last many years longer.

PEACH LEAVES AND FRUITS: *T. S.* Very bad examples of mildew. Remove the worst of the leaves and all fruits that have the least sign of mildew on them, burning these forthwith. Having done this, syringe the trees with sulphide of potassium $\frac{1}{4}$ -oz. to a gallon of water, or use flowers-of-sulphur with a dredger. See answer to "Cymro" under Vines in this column.

POT-POURRI. *V. F. S.* This may consist of a variety of sweet-smelling flowers, roots, leaves, and seeds. We may mention Tonquin and Vanilla-beans, Orris-root, Orchis fœca, petals of fragrant varieties of the Rose, Sweet Verbena, Lemon-grass, Kus-kus (*Andropogon muricatus*), Patchouly, Lavender-flowers, Orange-flowers, ground Nutmegs, &c. The various substances should be dried in the shade, and stored in open jars, and frequently stirred to dissipate the odour.

QUICK OR WHITETHORN: *F. W.* Life is not long enough to wait till seedlings are raised, but you can buy Quicks very cheaply of some of the nurserymen. Buy as many as you require in October or November, laying them in on arrival; then proceed to stake out the line of the hedge. It is a good plan to trench and manure a space of 6 feet wide, and the length of the hedge, and reserve a space of 3 feet wide for the plants, the margin of soil for 1½ feet on either side of this plot, and one to two spits deep being thrown on to the central plot in order to add to its depth, and afford a slightly elevated platform for the hedge. Having made the

plot level, and trodden it firmly, stretch the line along the centre, and proceed to plant, first trimming the roots and slightly topping the plants. There are two methods of planting, i.e., against a vertical notch cut with a spade, by which all the roots are one side; and the other is, to take out a few spits at one end of the line and on both sides of it, putting the plants in at 6 inches apart, and almost touching the line, and working backwards. By this method the roots can be spread out in the holes, and they are not more numerous on one side than another, and the ground is not trodden upon after the filling in is done. Which ever is adopted, two persons must work together, one trimming and holding the plants, and fastening them in the ground, whilst the other digs the holes and fills in. If you decide to have a ditch as a further defence against horned stock and horses, the dug out soil should be thrown partly or wholly on to the site of the hedge, then no other additional soil becomes necessary, and the trenched ground need not exceed 3 feet in total width. No virgin soil should be trenched deeper than two spits at first, nor should a greater thickness than 6 inches of inert, infertile subsoil be added on the top of the dug ground, otherwise the Quicks will make slow progress for some years. A Quicks hedge should always be protected by posts and rails until it is strong enough to resist encroachment from sheep and cattle.

TOMATOS: *W. Ross*. The fruits and leaves are affected by the "Spot" disease, *Cladosporium lycopersici*. There is no known cure, and you ought to clear and burn the plants.

TOMATO LEAVES: *W. Parker*. The "Sleepy Disease." See answer to J. Claydon in *Gardeners' Chronicle* for June 11.

VINES: *Cymro*. Mildew was found on the leaves, and it will be necessary to use sulphide of potassium $\frac{1}{4}$ -oz. or more to a gal. of water, or dust with flowers-of-sulphur, employing a mechanical sulphurator or dredger. Sulphur should be mixed to a thick paste with water, and then being slightly diluted may be placed in saucers about the vinery. The air in the vinery should be kept buoyant, not over moist, the heating apparatus being used in damp cool weather, ventilation being mostly afforded at the upper part of the vinery. That which mildew has settled upon remains disfigured; and mildewed Grapes, even when the fungus is killed, are spoiled, the affected part of the skin losing its power of expanding as the contents increase in bulk, with the consequences that the skin bursts, and decay sets in. It is better to remove and burn all mildewed berries at once.

VINE LEA IS BROWNED AND DISFIGURED: *Phœnix Newton*. The vinery has not been well attended in the matter of affording air, and the leaves are "scalded"—that is, by excessive heat and moisture combined, the leaves have become, as it were, scalded by water. Afford air earlier in the morning, a little at a time, till the greatest heat is passed, and then as gradually reduce the ventilation till at from 3.30 to 4 P.M. the house is closed. About 7 or 8 P.M. afford a small amount of ventilation at the top of the house. Remember Vines are hardy plants, and bear forcing only under certain conditions.

ZONAL PELARGONIUMS: *J. T. D.* The plants have collapsed in consequence of the stems having been buried too deeply, hindering the access of air to the green parts of the stems and the roots. It is deprivation of air and hindrance of transpiration, suffocation in fact, and the result is decay affecting the stem and shoots in certain parts, followed by death of the parts above them.

COMMUNICATIONS RECEIVED.—Street Brothers.—G. A.—T. B.—G. Massee.—C. de B.—W. S.—R. D.—E. C.—G. H.—G. Henslow.—E. C. A. (next week).—Messrs. Paul & Son.—Messrs. Little & Ballantyne.—W. D. T.—O. F., Zurich.

PHOTOGRAPHS, &c., RECEIVED.—C. L. W.

CONTINUED LARGE INCREASE in the CIRCULATION of the "GARDENERS' CHRONICLE."

Important to Advertisers.—The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper, **MORE THAN DOUBLED**, and that it continues to increase weekly. Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, and ALL CLASSES of GARDENERS and GARDEN-LOVERS at home, that it has a specially large FOREIGN and COLONIAL CIRCULATION, and that it is preserved for reference in all the principal Libraries.



THE

Gardeners' Chronicle.

SATURDAY, JUNE 25, 1898.

THE HISTORY OF THE RADISH.

IN the *Gardeners' Chronicle* for May 14, p. 296, some hesitation is expressed as to the garden Radish having arisen from *Raphanus Raphanistrum*, L., as M. E. A. Carrière seems to infer from his experiments (*Origine des Plantes domestiques, démontrée par la culture du Radis sauvage*). It is suggested that it may be derived from an Indian species, now perhaps extinct, from the consideration of the structure of the leaves and pods, those of *R. Raphanistrum* being jointed, while those of *R. sativus* are without partitions. Again, the petals of the former are often yellow, but those of the Radish are white or pink.

From the history of the Radish, as appears from Theophrastus downwards in European herbals, it would seem that it arose from *R. maritimus*, which Bentham regards as a Mediterranean variety of *Raphanus Raphanistrum*. This may account for the cultivated Radish "resisting cold less well than the wild variety," and hence the writer says, "we may infer that the former (the cultivated Radish) has a more southerly origin." Bentham's words are as follows:—"A sea-coast variety, particularly abundant round the Mediterranean, but extending up the shores of W. Europe to those of [Jersey] England, Ireland, and southern Scotland, has been distinguished as a species, under the name of *R. maritimus* (*Eng. Bot.*, t. 1643). It has the leaves usually more divided, the pods often longer (or 1—2 jointed, and sharp-pointed, *G. H.*), and is apt to last a second year; but all the other characters derived from the colour of the flower, the comparative length of the style and pod, the depth of the furrows, &c., occur also on inland specimens—at least on the Continent."

ANCIENT HISTORY.

The Radish was well known to the ancients. Pliny, writing in the first century, A.D., and quoting from Theophrastus (*Lib. vii.*, c. 4), refers to several varieties which were therefore grown about 370 B.C., both long and round-rooted. Of the "Syrian," he says, "it is pretty nearly the mildest and the most tender of all, and is well able to bear the winter; while "one brought from Syria lasts the whole of the winter through," apparently a different sort from the preceding. He then hints at different degrees of tenderness, the result of the different climates where they grew.

In addition to the cultivated, he refers to the wild or "agrion," which our people call "armoracia" (*lib. xix.*, c. 26). In Daubeny's *Roman Husbandry*, that author enumerates all the plants noticed by Dioscorides, and the cha-

acters of the drawing attached to the celebrated Vienna MS. of the fifth century. Of the Radish he says:—"Raphanis, *Raphanus sativus*, "good;" *R. agria*, *R. Raphanistrum*, "pretty good." Matthiolus, in his *Commentary on Dioscorides* (pub. A.D. 1560), figures on p. 268 the Radish under *Raphanus* with a Carrot-like root. The siliques are only one to two-seeded, with a constriction between them, and terminating with a sharp point. Dioscorides himself says, "The wild Radish, *R. sylvestris*, the Romans called *Armoracia*, and leaves like those of the cultivated . . . and a slender root, tender and subacid."

Sixteenth Century Writers.—Besides Matthiolus' *Commentary*, Dodoens, in his volumes of illustrations to his *Commentarium de Striptum Historiæ* (vol. ii., No. 142), figures *R. sativus* as having ovate-acuminate pods, with or without a constriction. The leaf is given as very strongly serrated. Gerarde (*Herbal*, A.D. 1597, pp. 183, 184) figures 1, *R. sativus*, with an oblong root and pods cylindrical without constrictions or pointed tips, and describes it as having "purple flowers." 2, a small Turnip-radish; no flowers or pods given. 3, *R. orbicularis*, and 4, *R. pyriformis*, both these having two seeded and constricted pods with pointed apices. The flowers of (3) are "purple," and of (4) "flesh-colour."

"The Wilde Radish," *R. sylvestris* (p. 185), has long pods with constrictions feebly represented, and the leaf is scarcely sufficiently lyrate to represent *R. Raphanistrum*. The flowers are yellow. It seems to represent *Nasturtium sylvestre*, Br.

Some confusion arose about this time, for Dodoens figures *R. sylvestris* as the Horse-Radish, i.e., Gerarde's *R. rusticanus*; while Gerarde's *R. aquaticus* or water-Radish is Dodoens' *R. palustris*, i.e., *Nasturtium palustre*, L.

Seventeenth Century.—Castore Durante in his *Herbarium*, 1636, A.D., figures *R. hortensis* with lyrate leaves, the margins of the segments being entire, the pods short, ovate, with sharp points without constrictions. *R. sylvestris*, *R. Agria* of the Greeks, and *Armoracia* of Latins, has similar pods, but the leaves are serrated. *R. hortensis* has white flowers; those of the wild plants are not mentioned. The drawings are not good.

Parkinson in his *Theatre of Plants* (1640, A.D.) figures a Carrot-like and a Turnip-rooted form. Both have short-pointed pods with a slight constriction. The one is called *R. vulgaris*, ordinary garden Reddish (a misnomer from the colour), and the other is *R. niger rotundior* radice, the rounder-rooted blacke Reddish.

The wild Radish he figures under *Rapistrum album articulatum*, white wilde Raplocke, with long articulated siliques. This appears therefore to be *R. Raphanistrum*, L.

Eighteenth Century.—In Tournefort's *Compleat Herbal* (1730, A.D., vol. ii., p. 466), the pod of the garden Radish is well represented as slightly constricted, striated, and sharp-pointed, the flowers are purple. Tournefort describes *R. major*, *orbicularis vel rotundior*, with white or purple flowers; *R. niger*, with smaller leaves and deeper jagged (serrated?). "Parkinson sowed the seed of this species, which produced plants, some of which had black roots; but the greatest part were covered with a white skin." Lastly, *R. minor*, *oblongus*, with oblong root.

In his *British Herbal* (1756, A.D.), Dr. John Hill first describes "The wild white Radish" *R. sylvestris*, *radice albente*. His figure of this is a two-seeded constricted and pointed pod; the

leaves lyrate, but the segments all connected. "It is found in some parts of Sussex, principally near the sea-coast. . . . Ray calls it *R. maritimus flore luteo, siliquis articulatis secundum longitudinem eminenter striatis*. One would think that the garden Radish was raised from this, but for the colour of the flower" (p. 243). He then describes the garden Radish, *R. vulgaris*; the round black Radish, *R. radice rotundo nigro*; and lastly, the long, jagged-leaved, black Radish, *R. foliis laciniatis radice longo nigro*. Both the last are figured, the foliage being very distinct; but the pods the same as of the first-mentioned. Hill says that the garden Radish and the last-named are natives of Spain; the round black Radish, of Italy. With regard to the colours of the flowers of the Spanish-Italian varieties, the flowers are white with a tinge of purple or red, some more, some less. The pods are jointed in all.

Taking Miller's *Dictionary* as an example, the author mentions *R. sativus* and three others as constant varieties, and *R. Raphanistrum* as distinct. It is called "the white-flowering Charlock with a jointed pod." He also observes that "the small round-rooted Radish is not very common in England, but in many parts of Italy it is the only sort cultivated."

Nineteenth Century.—In the *Prodromus Syst. Nat.* of A. P. de Candolle (1824, A.D.), we find seven species described, as well as two doubtful ones. Of *R. Raphanistrum* there are three varieties, with white, yellow, and purplish flowers; while *R. maritimus* flowers are yellow, and scarcely veined.

From the above abbreviated descriptions, it will be seen how all the characters relied upon are variable, as Bentham observes, and judging by the figures of the siliques, they certainly are constricted, but in that of Tournefort, the constrictions are much reduced under cultivation, so that it does not appear surprising that they should vanish altogether. *R. maritimus*, being a south European type, will account for the tenderness sometimes shown in the Radish; so that the general result appears to be that Radishes have been raised in many countries from the local sub-varieties of this variety of *R. Raphanistrum*, L. George Henslow.

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT CHEAM PARK.

THE beautiful garden of F. C. Jacomb, Esq., in Surrey, has been long noted for the excellence of its Orchids, especially *Odontoglossums* and showy *Cattleyas* and *Lælias*. A few years ago, Mr. Jacomb replaced the long range of old lean-to houses by new ones better adapted to plant-culture, but in which he repeated the roomy and lofty character of the old houses. About the same time Mr. James Turner, now head gardener at Cheam Park, took charge of the garden and grounds, the plant, fruit, and Orchid-houses included. Following these alterations, the Orchids made a fresh start, and now they far surpass in vigour and floriferousness anything seen in the garden previously. On Sundays the gardens and pleasure-grounds are thrown open to the public, and on the first day they were opened this season there were nearly one thousand visitors. For this occasion, and at the time of our visit, the three large plant houses were very gay, being skilfully arranged with fine examples of *Odontoglossum crispum*, *O. Pescatorei*, *Cattleya Mossiæ*, *C. Mendelii*, and *Lælia purpurata*, intermixed with other stove and greenhouse flowering and foliage plants. Overhead were suspended varieties of *Cattleya Mossiæ*, all of which were of a very handsome type and some of them distinct, notably one very large

flower, in which the greater part of the labellum was of a bright orange-colour, resembling that of *C. Dowiana*; and another with medium-sized flowers, of a very dark tint of crimson, the colour throughout being very fine. The dozens of fine specimens of *Cattleya Mendeli* also showed great variation, no two of them being alike, their flowers varying from bluish-white, with only a little crimson colour on the lip, to rose-colour, with crimson-purple labellum. The finest of this class is *C. Mendeli* "Her Majesty," with which Mr. Jacob secured a Silver Medal at Manchester a few years ago, and which he prizes very much. One form is very pretty and peculiar, the tube of the lip being of a glowing orange colour.

Cattleya Warscewiczii is also represented by some very fine specimens, and prominent in the charming display are *Laelia purpurata* Schoderæ, with nearly white flowers; some good specimens of *Miltonia vexillaria*; a few handsome spotted forms of *Odontoglossum crispum*; *O. luteo-purpureum*, very finely flowered; several graceful plants of *Thunia Marshalliana*, *Dendrobium Dalhousieanum*, *D. chrysotoxum*, *Cattleya labiata* Warneri; some good *Odontoglossum citrosium*; a number of finely-grown *Cattleya Harrisonii*, producing flowers freely; two fine examples of *Cypripedium Rothschildianum*, the one of very dark colour, bearing a stout spike of three flowers, the other much lighter in colour; *C. x selligerum* major, and other *Cypripediums*; *Oncidium concolor*, &c.

Among the flowering plants other than Orchids in these three houses were *Allamanda Hendersonii*, the pretty blue *Torenia asiatica*, various colours of *Thunbergia alata*, scarlet *Clerodendrons* and *Anthuriums*, a very fine strain of *Gloxinias*, &c.

In the *Cattleya*-house proper the plants are vigorous and some of the best varieties are not only kept healthy, but are increased in number.

The *Odontoglossum*-house is a very pleasant sight, its large number of plants being in the best possible condition, the newly-made bulbs on the *Odontoglossums* are large, plump, and of a rich green colour, their flower-spikes stout, and bearing flowers of a very thick texture; the white and rose-tinted forms of the *Pacho* strain predominated. Also in bloom are some brightly-coloured *Masdevallias*, *Oncidium concolor*, and a few other species. The house feels cool and moist, the edges of the staging bright and fresh with the long trailing stems of the British *Toad-flax* (*Linaria Cymbalaria*). This elegant trailer is eminently suited for trailing over the edges of the staging in the cool Orchid-house, for it is compact, fresh-looking, and insects do not, it is said, attack it.

In this, as in all the other houses at Cheam Park, ample provision is made for catching and storing rain-water. With a view to ensure a continuous supply, a large tank out-of-doors receives the overflow.

In one of the houses is a magnificent collection of double-flowering tuberous *Begonias*, raised by Mr. Turner from seed, and bearing large and very handsome flowers. In the borders are *Roses*, *Pæonies*, *Iris*, and other showy hardy perennials, and among the finest objects in the grounds are some noble and ancient specimens of the Cedar of Lebanon, and other conifers.

ODONTOGLOSSUM TRIUMPHANS VAR.

Mr. de Barri Crawshaw writes that his variety "Lionel Crawshaw" is "infinitely finer" than the var. *latisepalum*, figured in Cogniaux's *Dictionnaire Iconographique*. Nevertheless, in our opinion, they belong to the same group.

ODONTOGLOSSUM CRISPUM VAR. PRINCE OF WALES.

At the last meeting of the Royal Horticultural Society at the Drill Hall, Westminster, a plant of *O. crispum* with the varietal name *Prince of Wales*, was shown by Messrs. Hugh Low & Co., Bush Hill Park Nursery, the flowers of which for great substance, purity of the white, size, and general fine form exceeded anything before observed in "*crispum*."

The plant was well grown, and the inflorescence was furnished with eleven flowers. Our illustration (fig. 145) shows a flower of its true size, nearly 5 inches.

LILIES IN SCOTLAND.

THERE are only a very few Oriental Lilies which, by reason of their delicacy, are not adapted for garden-cultivation, the majority of them being of Indian origin. Among these are such varieties as *Lilium Lowi* and *L. nepalense*, which, though highly distinctive in their colouring, do not grow very vigorously, and are extremely sparing of their flowers. Of similar characteristics and equal limitations are *Lilium Wallichianum* and *L. neilgherrense*. It is but seldom that these Lilies are seen, even in a conserva-

that this great Lily takes such a length of time, generally four years, to build up the greatness of its vast flowering bulb; but on the other hand, it may truly be said that the patience of the earnest cultivator is amply rewarded when its full stature has been reached, and its noble flowers appear. Though a great bulb, it becomes exhausted in the effort to bloom adequately; but it usually throws out at least two offsets to ensure its perpetuation.

One of the finest and most reliable Lilies for garden decoration is *Lilium candidum*. It received this name from Virgil, the greatest of the Roman poets, who was, as his writings sufficiently testify, a lover of flowers. Propertius called it, with even more expressiveness, *Lilium argenteum*, the silver-hued Lily. It is worthy of both names; also, let me add,



FIG. 145.—ODONTOGLOSSUM CRISPUM "PRINCE OF WALES."

(See also Report of Royal Horticultural Society, in *Gardeners' Chronicle*, June 18, 1898, p. 385.)

tory, for which, among other reasons, their absolute unsuitability for out-door cultivation is not to be regretted; for under any circumstances they are seldom very gratifying in their floral results. One might naturally expect that species like *L. Wallichianum*, which are found for the most part among the Central Himalayas, growing in that mountainous region at a considerable elevation, ought to be of a somewhat harder constitution.

A notable exception to the general rule of Indian Lilies is *Lilium giganteum*, which, in a garden in the south of Scotland, attained last year to the imposing height of 13 feet; the magnificent specimen to which I am referring producing twenty-one perfectly formed and highly fragrant flowers of normal dimensions. Another, in the gardens of Logan House in this parish, where *Lilium giganteum* always grows grandly, promises to prove, when it has reached its full development, almost equally majestic. It is a pity

of that sacred benediction generally associated with the lustrous beauty of *Lilium chalcidicum*, in which it is affirmed that "even Solomon in all his glory was not arrayed like one of these." The Scarlet Martagon is also an admirable Lily for the garden, towering with great facility, and like many other members of the Martagon section, growing stronger every year after the first season—let us say of preparation in the form of root-production. Such are also the qualifications of *Szovitzianum*, *pardalinum* (the Californian "Panther Lily") and *Lilium Humboldtii*, which belong to the same sub-genus, and are equally vigorous, prolific, and enduring. Their colouring is also highly artistic; and when planted in situations where they can be seen to advantage, their effect is superb.

Lilium auratum, perhaps the most popular of Japanese Lilies, is of a widely different character, seldom lasting in any situation for more than three

years. After that period it generally deteriorates, and fails to produce impressive results. This is a fact which is greatly to be regretted; for though it possesses a very objectionable perfume, this imperfection is greatly modified by the action of the atmosphere, and it is unquestionably grandly ornamental. Perhaps it is in virtue of their more refined fragrance that I prefer the *L. speciosum*, especially the pure white variety called *L. s. Kraetzeri*; but they are also of somewhat stronger vitality than most of the forms of *Lilium auratum*, and much longer lived. *Lilium Krameri* is an exquisitely beautiful Lily, but difficult of culture, for which reason I trust that the new pink-coloured Lily, *Lilium rubellum*, introduced by Messrs. Wallace, of Colchester, and figured in our issue for May 28, 1898, p. 335, may prove at least, in the direction of hardiness and vigorous growth, a greater acquisition. It is not every season that suits *L. longiflorum* when cultivated in the garden; but

as in Keswick Codlin, to the penetrating spicy odour of Cloves. In some parts of Scotland "Flourish" or "Flourishing" is the pretty designation applied to Apple-blossom, words directly derived from the French, but which appear not to have extended south of the Tweed. So beautiful indeed are some of the trees with "flourishing," that one is compelled to the conclusion that it might be by no means amiss to cultivate only those Apples which, as decorative objects when in flower, are no less valuable than for the high quality of their fruits. An inspection of the more beautiful flowering varieties, show that these dual qualities are not at all rare. It is hardly necessary to give examples of popular Apples that excel also in the beauty of their flowers, but a very few of such will include Bismarck, with shoots enveloped in closely-set trusses; King of the Pippins, of great effect: Lord Suffield, a delightful variety with large pink blossoms; Manx Codlin, more profuse

and pretty features in kitchen gardens at this time of year; but one ineffective tree in a line will detract much from the general good effect. Hence, where such must be cultivated, they may be arranged in some part of the garden not greatly conspicuous.

It is, however, in the planting of espaliers that the full effect of planting injudiciously Apples for their flowering qualities is most forcibly presented. If Irish Peach, Court Pendu Plat, and Worcester Pearmain are associated, the crop may be satisfying, but the harvest of blossom will not. But by the simple method of planting one variety only on each stretch of espalier, or by associating those varieties which, while flowering at the same time, are much alike in colour and size of bloom, success in this point is assured. It is by no means a new idea, this of planting one sort only on one espalier, because exactly 180 years ago Switzer recommends Golden Pippins and Codlins to be planted in this manner. Not that he had any thought of flower-effect, but merely because these were the two Apples then in greatest repute, and he thought they were the best dessert and culinary varieties to grow by themselves.

There is here a very interesting example of the one variety arrangement. It occurs in a long covered walk (over 400 feet in length), in the way of the old French "tonnelles," and only one variety of Apple is grown on it. Though planted only six years, the effect is already very good; and, of course, there is no break in the bloom from end to end, while the green of the foliage and the tint of the blossoms is in each case unchanging. With espaliers it is perhaps unnecessary to be quite so uncompromising; Lord Suffield, New Hawthornden, and Manx Codlin, or Ribston Pippin, Tom Putt, and King of the Pippins could be associated with excellent effect.

One or two other points in connection with Apple flowers is worthy of consideration. I shall mention only two; and both involve a critical knowledge of the different varieties as flowering subjects which, as I suppose, comparatively few have. The first is the hardiness or form of the flowers as factors towards securing a crop of fruit. Court Pendu Plat has long afforded, by the lateness of its flowering, an example of an Apple that crops more or less regularly. But opposed to mere lateness of flowering as a singular means of attaining fruitfulness, it is admissible to point to Irish Peach as an instance of an early-flowering variety that is, to say the least, not less a certain cropper than the first-named. Then we have the curious fact that some varieties, which flower no less abundantly year after year than fertile varieties which never fail, are hardly ever known to bear fruit. [In Scotland?] Others again flower profusely, but very seldom indeed do they set a crop that it is necessary to thin; while yet others, even in bad seasons, continue in an unbroken course of ever-flowering fruitfulness. There is, of course, more than mere blossom to be considered, but there can be no reason for doubting its influence.

Perhaps no variety exhibits more the effects of frost and sunburn in its flowers than Early Margaret, a variety that has been cultivated uninterruptedly for three hundred years or more. But the petals of its white flowers slightly incurve, and although the effects of frost may be apparent on the petals, the stigmas appear to be protected from injury. In Worcester Pearmain we have a variety which from the narrowness of its petals, along with their wide expansion, is peculiarly susceptible to frost. Loddington and Warner's King are examples of a type that seldom or ever requires thinning, and this obviously a result of the wide expansion of the blooms which protect the fructifying organs neither from morning frosts nor midday scorching suns.

Leaving these practical matters, I shall refer very briefly to the other point, which is largely academical, though not without its value. It is the help that a critical knowledge of Apple-flowers would be in the determination of names. Some sorts are doubtless much alike, but taking the form of the pip and of the truss, the shape and tint of the petals, and, perhaps as helpful as any of these, the time of flowering, an almost certain method of determining nomenclature is ready to the hand of those who have leisure



FIG. 146.—EPI-CATTLEYA RADIATO-BOWRINGIANA: ROSE-PURPLE COLOURED, WITH DARK-PURPLE MARKINGS ON THE LIP.

when atmospheric conditions are very propitious, such varieties are *L. giganteum*, *L. Harriellii*, and *L. Takesima* will grow and flower with considerable success. They are always finer, however, when grown under glass. *David R. Williamson.*

EPI-CATTLEYA × RADIATO-BOWRINGIANA.

OUR illustration shows one of Messrs. J. Veitch & Son's hybrids, obtained from *Epidendrum radiatum* crossed with *Cattleya Bowringiana* (fig. 146). The plant has the habit of the first-named species, but the petals and sepals are of a rosy-purple tint, with a lip that is marked with purple lines of a darker tint. The pseudo-bulb is ovoid and flattish. A plant was shown at the Royal Horticultural Society's meeting on June 14.

"FLOURISHING."

A REMARKABLE year has been the present for its Apple-blossom, charming the eye with its profusion as it gratified the sense of smelling with its fragrance, even

and deeper tinted than the last-named, though the flowers are very small; Tom Putt, the lovely blush, almost white, flowers of which are arranged in large trusses.

Apple-trees with large deep-blush blossoms, are represented by many varieties, of which I name Loddington, Warner's King, Bramley Seedling, Tower of Glamis, and The Queen, Ribston Pippin, with flowers nearly white, is fine; and Early Margaret, though of less decorative value than any of the above, is also a white-flowered variety, very distinct and also pretty. Adams' Pearmain and Cox's Pomona, represent those with fawn-tinted flowers. These examples, which anyone may extend into a longer list, indicate the hopefulness of uniting in the cultivation of the Apple, beauty with utility.

If it is asked, in what manner are we to go about in order to secure this *utile dulci* in Apple culture? I think, not by interfering with orchards, nor with tall standard trees in gardens, but certainly with bush trees and pyramids, and more particularly with espalier trees. Lines of the two just named in conjunction, planted between quarters, may, by a proper selection, be made to form very interesting

and a competent knowledge of Apples to apply those marks aright. It is notorious that fruit from different localities, or off varying soils, varies very considerably. Flowers, on the other hand, are a fixed quantity, and therefore not to be ignored; and, at any rate, a knowledge of the flower that any given Apple produces would do much to clear the haziness that at present exists in the naming of the fruit.

The question of Apple-blossom in any of its aspects is full of interest, and even in the garden, as I have endeavoured to show, there is room for an improved disposal of the many truly lovely varieties of Apples which render May redolent. A step in the right direction will be the recognition of their capacity to render very many interesting gardens still more interesting. It is a step, therefore, that those who are called upon to select Apples to plant in new or improved gardens might do well to take. It entails no loss of fruit—perhaps the result will be a larger supply; and it is obvious that it would add largely to the beauty of the garden were the Apples to be arranged according to the affinity of their flowers. *R. P. Brotherstone, Tynningham, N.B.*

THE BULB GARDEN.

IRIS SIBIRICA AND ITS HYBRIDS.

THREE or four years ago I was walking with Mr. G. F. Wilson in his famous Iris meadow at Wisley, then more beautiful with flowering Irises than the Homeric meadow of Elysium ever could have been with Asphodels.

Amongst the countless flowers were some like *Iris sibirica*, but much larger. Mr. Wilson told me they must be self-sown varieties, and a little inspection led me to conclude that they were hybrids between *I. sibirica* and *I. virginica*, as they grew where these two species predominated; and with his usual liberality, Mr. Wilson gave me some fine specimens, which I selected.

About the same time there came into flower in my garden at Edge, plants from seed sent me by Mr. Thompson of Ipswich, as *Iris koreana*, a name which is not enumerated in *Index Kewensis*. The flowers, although from both sources they vary a little, agree in size and general characters, and probably have the same history. I call attention to them, because of all the somewhat large class included under the name *I. sibirica*, they are by far the best. In this garden hundreds of seedlings have come spontaneously and flowered from *I. sibirica*, including its white variety, and though they vary a good deal, not any have come like these I mention. A well-known form *I. s. var. orientalis*, with red spathes and buds, was so sparing of its flowers in spite of varied treatment, that it has long since been all consigned to the rubbish heap, but in these supposed hybrids the flowering is abundant. The size of the flowers, when the falls are extended horizontally, is about 5½ inches, typical *sibirica* being about 3½ inches. The form, whatever it is, is well worth the attention of gardeners, to many of whom it is probably known already. *C. Wolley Dod, Edge Hall, June 16.*

TREES AND SHRUBS.

AZALEA INDICA OUT-OF-DOORS.

WHEN visiting recently, Clyne Castle Gardens, near Swansea, the residence of Graham Vivian, Esq., I was deeply interested in some fine groups of *Azalea indica*. The principal group contains thirty-five plants; one of these, *indica alba*, stands 4½ feet high, and is 12 feet through, and was one mass of blossoms. A plant of the variety *Deutsche Perle* measured 4 feet through, and a plant of *A. Borsig*, with double, pure white flowers, 5 feet through. *Duc de Nassau*, a rosy-purple-flowered variety, was 6 feet through; *Madame van Houtte* is represented by a plant 7 feet in diameter; and *A. Sigismund Rucker*, lilac-rose

flowers, 6 feet. There are some twenty distinct varieties, including several good plants of *A. amœna*. The gardener, Mr. Foote, informed me that the majority of the bushes had been planted some twenty years. It would be interesting to know if there is another such collection in this country. The plants have withstood twenty winters without any artificial protection. *R. Milner, Penrice Castle Gardens.*

SCOTLAND.

MARKET-GARDENING AT LOANS, AYR-SHIRE.

SINCE the time—now about four years ago—that Mr. H. F. Bennie, of Barassie, leased a piece of ground at Loans village, about 2 miles from Troon, erected a range of greenhouses, and commenced the cultivation of Tomatoes, &c., he has had a fair measure of success. The nursery is situated at the south end of the village, and extends to 3 or 4 acres on each side of the Troon road. On the north side there were previously six forcing-houses, each 150 feet in length, but this year sufficient land has been taken in, and three others erected. These latter are massive glass frames, 102 feet long, and instead of being fixtures, they are built on wheels, and run on rails at a distance of 300 feet across, carrying a patent saddle-boiler to heat up the three houses by means of steam-pipes. They were built by the patentees, the Horticultural Travelling Structures Company, Limited, 2 and 3, White Street, London, E.C., and are the first of the kind erected in Scotland. As different crops require different soil, the expense of wheeling out and putting in fresh earth for each crop is saved, the structure being simply moved to the place where protection is required. In the south of England these travelling structures are used to force forward three crops, namely, Tomatoes, Chrysanthemums, and Strawberries. The Tomatoes grown at Loans, which are of first-class quality, are principally sent to Glasgow, the output last year being about five tons. Each year marks an advance in the quantity of Loans' Tomatoes consumed in Troon, which need not be wondered at when the quality is considered. The south part of Mr. Bennie's nursery is used for the outdoor cultivation of flowers for cuttings, &c., in which a good trade is done. In Scotland generally the chief drawback to such undertakings being successful at present is the rating of the land at feuing instead of agricultural value; but in time this may be put right, to enable growers to compete with England and foreign countries. *D. S. Millar.*

THE WEEK'S WORK.

FRUITS UNDER GLASS.

By G. NORMAN, Gardener to the Marquess of Salisbury, Hatfield House, Herts.

Planting Vines.—Vines which have been raised from eyes this year may be planted in the place of worn-out Vines whose produce is gathered. Such Vines have still sufficient time to become established this year, and for the canes to reach the length of a rafter in an ordinary vinery, and the side shoots partly to cover the intervening spaces. If a Grape-room exists there is no need to wait till the Grapes are consumed, but they may be cut and bottled. The new work will involve a thorough cleaning of the vinery-walls, glass, woodwork, &c., digging out the worn-out soil, putting the drainage in order, and temporarily bricking-up the arches or openings in the front walls of the vinery, and wheeling in the new soil. If a new border, the entire length of a vinery, has to be made, it is a much simpler affair than mere patching; and as a border deteriorates from year to year, it is advisable to make at the start a border of 3 to 4 feet wide, and to add 1 foot or 2 feet to it annually. Having made up the border of well-chosen materials, scoop out broad shallow holes, then partially shake out the Vine-roots, spreading them around in the hole, and cover with a couple of spadefuls of nice light soil, fill in a little, afford a gentle but copious application of water, and fill in finally. Now proceed to fasten the young Vine to a stick; then having planted and tied up every Vine,

damp down, and close the house, and maintain it in a close, warm condition, shading the Vines for ten days only, i.e., till they push forth their roots into the new soil, when more air may be admitted, and the Vines treated in a manner corresponding to that advised for early ones. As regards future additions of soil to the border, the various points insisted upon in regard to drainage, flooring of concrete, &c., should be strictly adhered to. Vines this year struck from eyes intended for fruiting in pots, if they are well furnished with roots, and are growing in 8-inch pots, may be shifted into 11-inch ones. Let the potting be firmly performed, and on no account let them lack water at the root; on the other hand do not sour the soil by unnecessary applications of water. The sound given forth by a pot when rapped will show if water be wanted or not. Cut-back Vines are best for the earliest crops in pots, and one-year-old Vines to follow them. When the pot-Vines are 7 feet long, nip out the point of the stem, and compel the dormant bud at that point to break; and pinch the side shoots back to one leaf each, this holding good of Vines from eyes this year and cut-backs. Cut-back Vines should by this time have made progress in the pots they are intended to fruit in, and will stand in need of very careful attention in the matter of root-watering. Maintain the house in which they are growing in a moderately moist condition, syringing the Vines twice a day, and affording free ventilation. The inarching of Vines should be carried out at this date, but there must be no delay in getting the operation done. The united Vine will, under favouring conditions, still have time to grow to the top of the vinery. At a suitable point select a young shoot low down on the rod, and place a potted Vine of this year's striking in a position convenient for being inarched to it. The union must be made where the wood is firm. Take off a slice about 2 inches long, and half-way through the stem and the shoot place the two surfaces together, and secure them with broad strips of bast. A short time suffices to make an union. Soon after the scion has taken, the ties must be replaced with looser ones, and this operation may have to be repeated. The root and part of the plant below the splice must not be removed till it is seen that a complete union is effected.

The Strawberry.—The runners for next season's forcing will shortly be in excellent condition, the recent rains having benefited them greatly, and to avoid any drawback from dry weather, applications of water will be required. It is a good rule to begin layering before the first runner has had time to put forth roots, and to pinch off all runners beyond the first. If pots be used, large 60's are a very suitable size, and these should be filled with fine loam to within half-an-inch of the top, and made somewhat firm by hand pressure. Having placed the pots, secure the runners on the soil with hooks, &c., and afford water every afternoon when there has been no rain to moisten the soil. If sufficient runners are not found when looking over them the first time, another examination should be made about ten days later. In order to avoid treading on the runners and bruising them, turn the runners from two rows of plants on to the space between the same two rows, and use the alleys on either side as paths.

THE ORCHID HOUSES.

By W. H. WHITE, Orchid Grower to Sir Trevor Lawrence, Bart., Burford, Dorset.

Cattleya or Intermediate-house.—*Aganisia corulea*, whose flowers are almost identical in colour with those of *Vanda corulea*, is also like the same species, difficult to cultivate successfully for a long period. It thrives best when fastened to a piece of Teak board, with a little sphagnum-moss attached, to keep the roots moist. Place it with such plants as *Bolles*, *Pescatoreas*, &c. *Vanda Kimballiana* and *V. Amesiana* should now be placed in a light and well-ventilated position. Do not keep the rooting material in a saturated condition, or the terete leaves will become spotted and fall away; but afford just sufficient water to keep the moss fresh and green. Their immediate surroundings, however, must be made constantly moist until the flower-spikes appear. Old plants of *V. corulea* that are not thriving satisfactorily, now that root-action has commenced, should be taken out of their pots or baskets, and fastened to bare Teak rafts. Suspend them in a light airy position, and syringe the stems and roots several times a day until growth is completed. Plants that are growing well and are healthy will only need resurfacing with fresh sphagnum. *V. teres* and *V. × Miss Joaquim*, now in bloom, grow and bloom profusely in a moist sunny position in the

ordinary plant-stove; they require to be syringed overhead several times a day during active growth, for if allowed to become too dry the lower leaves will shrivel and fall. *Cattleya Schilleriana* having bloomed, should be suspended in a cool position in this house, very little water being needed to keep the growths plump. *Brassavola Digbyana*, if strong, will be pushing up its flower-spikes; the plant at this time should be placed in the warmest and lightest corner of the house, and be afforded generous treatment until the flowers open. The curious *Dendrobium Brymerianum* makes stronger bulbs and blooms more profusely in this division than in the East Indian-house. Plants now starting to grow may be repotted if necessary. Those who possess several plants would do well to suspend one near to the roof-glass, and place the others upon the stage with the *Cattleyas*, &c. When the plants have become well rooted they will need copious waterings, and syringe well up under the leaves to prevent red-spider obtaining a footing. *D. x Victoria Regina* grows well in an intermediate temperature. Secure the plant to a Teak raft, and lightly cover the roots with sphagnum-moss. Sprinkle the moss occasionally, and the plant will grow luxuriantly. *D. Coelogyne* and *D. cymbidioides* also grow well if suspended close to the roof-glass in this house. Plants of *Odontoglossum Londesboroughianum* now making their growths, should be carefully watered, and none must be permitted to enter the young breaks. This lovely species deserves every attention, and it should be placed in the lightest position in the house. *Leelia majalis* now growing and rooting freely, requires plenty of root moisture until growth is finished, and a cool light position at all times. The rare *Coelogyne Sanderiana* has now passed its resting season, and no amount of dryness will cause the plant to flower if it has not been properly rested. As the new breaks appear place the plant where it will obtain plenty of light without direct sunshine, and water the plants copiously. Repotting may be done when the flowers have faded, or in the absence of flowers, as soon as the young roots appear. *Maxillaria Turneri* is now in bloom, and the scent of its flowers pervades the whole house. It grows freely when potted in ordinary Orchid compost, and requires a rather shady position in the intermediate-house. In the cool-house here the tips of the leaves become black and decay. Immediately the plants of *Coelogyne Dayana* have passed out of bloom they may be afforded fresh rooting material, and the usual care afterwards practised in watering them. This *Coelogyne* may be grown in pans or baskets, and if suspended to the roof of the house the long pendulous flower-spikes will display themselves perfectly. *Odontoglossum pulchellum* is commencing to grow afresh, and may be repotted. Afford plenty of drainage-material, and use a compost of three-parts sphagnum-moss to one of peat, and a few pieces of broken crocks. Fix the plant well above the rim of the pot, and press the soil rather firmly around its base, and place it at the warmer end of the house.

THE KITCHEN GARDEN.

By J. W. McHATTIE, Gardener to the Duke of WELLINGTON, Strathfieldsaye, Hants.

Globe Artichoke.—This valuable vegetable, during its growing season should be afforded copious root-waterings, alternated occasionally with liquid-manure. Some of the heads are now ready for the kitchen, and in cutting them off remove the stalks also to within a few inches of the ground-level, that they may cease to draw further nourishment from the roots of the plant. New plantations, whether made with seedlings or suckers, should be given every attention that will encourage the plants to make free and rapid growth. The surface of the soil may be frequently disturbed by hoeing, and during dry weather root-waterings will be needed.

Leek.—To obtain very large fleshy Leeks it will be necessary to afford the plants frequent supplies of weak liquid-manure during the remaining part of their growth. The ground may be kept in a sweet state by frequently stirring the surface with a hand-fork or hoe. The leaves being sometimes damaged by wind, it is a good practice to afford exhibition plants support by placing sticks to them.

Herbs.—When Mint, Thyme, Sage, Balm, and other herbs show for bloom, a quantity of each should be cut during fine weather, and be afterwards tied up in small bunches and suspended in a dry airy shed, free from strong sunshine. They will thus dry slowly, and be valuable for winter use.

Salsafy and Scorzenera from seed sown as directed should now be thinned, and the ground ridged of

weeds. For either purpose it is better to use the hoe than effect the operation by hand.

Affording Water to Vegetables.—During a hot summer liberal supplies of water are doubtless of exceeding benefit to most garden crops, and should there be a good and convenient supply of water all over the garden, the trouble and cost of applying water will be very trifling compared with the advantages that will follow. When water is necessary, let it be afforded in the evening, or, failing this, in the early morning; the same amount of water applied at night will have greater effect than at any other time, owing to the atmosphere being less conducive to evaporation, the water will the better sink into the soil. But if water cannot be thoroughly applied, and followed up, then the better plan will be not to afford any. Other means may be taken to prevent evaporation from the soil, and thus preserve what moisture it still possesses. It is not sufficiently recognised how much may be done by mulching with manure, short grass from the lawn, stable-litter, or rotten tan between the rows of vegetables. Some crops, as for example, salads may be shaded with mats during the heat of the day. Bent stakes placed in the same manner as for protecting early Potatoes will afford the necessary supports. Frequent and fairly deep hoeings are of the utmost value in helping the crops to withstand drought, and many large and successful fruit growers rely upon this means alone—watering in such cases being impracticable. Lettuce or other plants that have been transplanted must, of course, be afforded water at the roots as they require it.

HARDY FRUIT GARDEN.

By W. H. DIVERS, Gardener to the Duke of Rutland, Belvoir Castle, Grantham.

Pears.—If early varieties of the Pear have set their fruits thickly, they will now be, in most parts of the country, large enough for being thinned, and the best instrument to perform the job is a pair of ordinary Grape-scissors. First remove the under-sized and deformed ones, and thin the remainder, so as to leave the crop as evenly distributed over the tree as possible. Some kinds, as *Fondante d'Automne*, *Summer Franc Real*, fruit in clusters, and come to a fair size if five or six be left in a cluster; and *Doyenné d'Été* and *Citron des Carmes* are chiefly valuable for their earliness, and these should be thinned somewhat, besides the trees being afforded manure-water. In point of earliness, *White Doyenné*, *Jargonelle*, *Beurré Giffard*, and *Williams' Bon Chrétien* follow close on the last two, and they occasionally set heavy crops of fruit; the three last grow to a large size under good cultivation, and require severe thinning to obtain fine specimens, not more than two fruits being left in a cluster. A mulching of farmyard manure, and an occasional application of weak manure-water will now be of great assistance to the trees. Late varieties may be left a fortnight later before thinning the fruits.

Training.—All young fruit-trees should now have the leading growths, whilst still pliable, secured by shreds or ties; but the summer pruning should be delayed till the new shoots get firmer, when there is less danger of the dormant buds pushing into growth. Shoots which grow too freely had better be stopped if they seem likely to disturb the balance of growth or render weak shoots still weaker. Weakly trees with unhealthy-looking foliage should be stimulated by manure-water at the root, and a part of their crop of fruit removed.

Morello Cherries.—See that the trees are thoroughly free from aphids before the fruit commences to colour, as it is inadvisable to apply insecticides afterwards. The safest remedy for the black aphid that affects Cherry-trees is suds made with soft-soap 4 oz. to a gal. of rain-water, to every 3 gal. of which a quarter pint of tobacco-juice is added. This should be applied with a wall-tree engine or powerful syringe, and after the lapse of a few hours the trees should be syringed copiously with clean water.

PLANTS UNDER GLASS.

By W. MESSENGER, Gardener to C. H. BERNERS, Esq., Woolverstone Park, Ipswich.

Richardias.—Where some or all of the stock of this plant are grown, turned out of their pots in the open ground, a piece of land somewhat shaded from the midday sun and of good depth, should be heavily dunged, and deeply dug in readiness for planting within a week or two. Let the plants be shaken out of the old soil, and the decayed leaves

&c. removed, the masses reduced in size, and broken roots cut off, then proceed to plant at a distance of 2 feet apart in lines, making a shallow basin round each for the better affording of water. The object of planting out is to the production of vigorous plants for lifting in September or October.

Cinerarias.—Plants from the earliest sowing being now large enough may be shifted into large or small 48's, and the smallest into 60's. Plants from later sowings will be in need of pricking-out into pans or boxes. A cold frame behind a hedge or wall, and facing north, is a suitable place for *Cinerarias* at this season, the pots and pans being stood on a coal-ash bottom, with a sprinkling of soot over it. Here the conditions will be such that no shade is required to break the force of the sun with the result of weakening growth, and thrips and red-spider are easily kept in check. A close watch must be kept for slugs. Seeds may still be sown.

Begonias.—The autumn and winter-flowering varieties that are in need of repotting may at this shift go into the flowering-pots, but only those which have made plenty of roots should be afforded so large a shift, the remainder waiting till they have made more roots. Stand them all together in an unheated pit or garden-frame, affording air freely by day, and a slight shade when the sun is bright, and syringing among the pots freely once or twice a day, not wetting the leaves in bright weather, or they will be scorched and discoloured.

Cyclamens.—These plants that have been raised from sowings made in August and September last, and potted, may, if they are well established in small 60's, be shifted into 48's. A pit or frame facing north should be allotted to the plants, and then little or no shading will be needed; and should the plants flag, syringe them frequently in preference to using shading. Take great care that the plants do not become dry at the root, and syringe them two or three times daily. *Cyclamens* raised from sowings made early in the present year will be ready for shifting from the pans and boxes on which they were pricked-off, into 2½-inch pots. The soil I find best for the plants consists of good fibrous loam three-quarters, rotten-manure and leaf-mould one-quarter, mixing enough silver-sand with it to secure porosity; and clean pots and good drainage are very essential.

THE FLOWER GARDEN.

By H. WALTERS, Gardener to Lord GERRARD, Eastwell Park, Ashford.

Bedded-out Plants.—In the event of a spell of hot dry weather occurring, the plants recently bedded-out will need water to enable them to obtain a good root-hold of the ground, that they may soon fill up the spaces intervening between each plant. The best time to afford water is the evenings. If the work be done in the early morning, and this is immediately followed by hot sunshine, some of the foliage may be scalded. A fine rose should be used upon the water-cano, as the water will the better be enabled to penetrate the soil. Edging plants such as *Lobelias*, *Pyrethrums*, *Lysimachias*, *Antennarias*, and *Violas*, should be given liberal quantities of water frequently, to encourage growth. Remove weeds from among the plants as fast as they appear, and keep the edges of the beds neatly trimmed. *Verbenas* and *Phlox Drummondii* will require to be pegged evenly over the ground as growth proceeds. Annuals should be thinned out as each case requires, so that the plants may have room for individual development.

The Rose Garden.—Green-fly this season is so abundant that frequent washings will be necessary as advised in a previous calendar. Keep the ground frequently hoed between the plants for the three-fold purpose of destroying weeds, of maintaining a neat appearance, and of preventing excessive evaporation from the soil. Occasional waterings with liquid-manure from the farmyard should be afforded the plants; they will greatly benefit from them, and the blooms will be finer. Remove dead blooms from the plants, and keep the shoots on climbing, and pillar Roses tied or nailed as required.

General Work.—Use the hoe among recently planted shrubs for the destruction of weeds. Mow the lawns frequently, and keep the edges and verges trimmed. The gravel-walks should be rolled, and Box and other edgings cut. Dahlias and *Gladiolus* may be mulched with half-rotten manure. The later batches of Sweet Peas should be staked; and if a mulching of manure be afforded the plants, they will greatly benefit therefrom. Endeavour to maintain as neat an appearance everywhere as possible.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, as well as specimens and plants for naming, should be addressed to the EDITOR, 41, Wellington Street, Covent Garden, London. Communications should be written on one side only of the paper, sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith. The Editor does not undertake to pay for any contributions, or to return unused communications or illustrations, unless by special arrangement.

Local News.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.

Illustrations.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.

Newspapers.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

APPOINTMENTS FOR THE ENSUING WEEK.

SATURDAY, JUNE 25	Windsor and Eton Rose and Horticultural Show. Royal Botanic Society, General Meeting.
TUESDAY, JUNE 28	Royal Horticultural Society's Committees. Royal Horticultural of Southampton Exhibition (2 days). Rose Shows at Leeds and Sutton.
WEDNESDAY, JUNE 29	Horticultural and Rose Shows at Richmond, Croydon, Canterbury and Brockham.
THURSDAY, JUNE 30	Royal Horticultural Society of Ireland, Exhibition. Rose Shows at Eltham, Gloucester, and Norwich.
FRIDAY, JULY 1	SALE. Imported and Established Orchids, at Protheroe & Morris' Rooms.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years, at Chiswick.—62° 5'.

ACTUAL TEMPERATURES:—

LONDON.—June 22 (6 P.M.): Max., 71°; Min., 55°.

PROVINCES.—June 22 (6 P.M.): Max., 65°, S. Coast; Min., 51°, Sunning Head.
Fine, warm, windy.

IN the year 1900 the Parisians propose to inaugurate an exhibition on a larger and more magnificent scale than ever. The proposed subjects for exhibition will be grouped in eighteen groups, comprising 120 classes. "The guiding principle is," says the Prince of WALES in his inaugural address to the Commissioners, "that similar products from whatever part of the world they may come, should be shown side by side." The interests of British Horticulture and Arboriculture with which our readers are mainly concerned are to be cared for by Committee V., as follows:—

"COMMITTEE V. (Groups VII., VIII., IX., and X. CLASSES 35–62.)

Agriculture. Horticulture and Arboriculture. Forests, Sport, Fishing, Gathering Wild Crops. Food Products.

Earl Spencer, K.G. *Chairman.*
Earl of Crewe.
Duke of Fife, K.T.
Earl of Dudley.
Earl of Jersey, G.C.M.G.
General the Right Hon. Sir Redvers H. Buller, G.C.B., V.C.
Right Hon. Horace C. Plunkett, M.P.
Sir Edward Grey, Bart., M.P.
Sir J. J. Trevor Lawrence, Bart.
Sir Jacob Wilson.
W. T. Thiselton-Dyer, Esq., C.M.G.
Lawrence Grattan Esmonde, Esq.
Paul J. Madden, Esq."

Dr. MAXWELL MASTERS, F.R.S., is also attached to this committee.

The horticultural division is comprised in Group VIII.:—

"GROUP VIII.—HORTICULTURE AND ARBORICULTURE.

CLASS 43.—APPLIANCES AND PROCESSES USED IN HORTICULTURE AND ARBORICULTURE.

Implements for gardeners and nurserymen: spades, pickaxes, hoes, lawn-mowers, garden-rollers. Tools for pruning, grafting, gathering, packing, and transporting produce: pruning and grafting knives, ladders, &c. Props. Watering apparatus.

Apparatus and objects used for ornamenting gardens: vases, pots, chairs, garden-seats, fountains, labels, &c.

Glass-houses and their accessories; heating apparatus; mats, &c.

Window and room conservatories.

Aquariums for aquatic plants.

Garden architecture: plans, drawings, models, books, pictures, &c.

CLASS 44.—KITCHEN GARDEN PLANTS.

Kitchen garden plants cultivated on a large scale, vegetables from market gardens: Potatoes, Cabbages, Carrots, long Radishes, Radishes, Capsicums, Artichokes, cultivated Mushrooms, Cress, &c. Fresh specimens.

CLASS 45.—FRUIT AND FRUIT TREES.

Species and varieties. Trees grown in the open; trees trained against walls.

Specimens of the products of cultivation on a large scale (orchard, orangeries): cider Apples and Pears, Cherries, Plums, Oranges, Lemons, Almonds, Nuts, &c.

Specimens of the products of garden cultivation: fruit grown in the open; wall fruit. New species and varieties.

CLASS 46.—TREES, SHRUBS, ORNAMENTAL PLANTS AND FLOWERS.

Ornamental standard trees, grafted or not.

Evergreen or deciduous shrubs and ornamental trees.

Park plants, garden plants.

Herbaceous plants in open ground.

Beds and baskets of flowers. Nosegays of natural flowers.

CLASS 47.—GREENHOUSE AND HOTHOUSE PLANTS.

Specimens of cultivation in use in different countries for utility or for ornamental purposes.

Forcing vegetables and fruits: specimens of products obtained.

Species and varieties cultivated for ornament: greenhouse plants, hothouse plants.

CLASS 48.—HORTICULTURAL AND NURSERY SEEDS AND STOCK.

Collections of vegetable seeds.

Nursery stock of trees, grafted or not."

Horticultural products are, so far as is made clear by the map, to be exhibited on the north side of the Seine, near the Place de l'Alma, parallel with the Cours la Reine.

We shall keep our readers informed upon the progress of this great exhibition. Nothing definite, we believe, has yet been decided as to the methods in which horticulture is to be represented. Application for space is, however, to be made to the Secretary of the Royal Commission, not later than August 20, 1898. No charge will be made for space. Goods for exhibition only will pay no customs duty. Much further general information is to be obtained from a government document published for the Royal Commission, and to be had from the Secretary, Royal Commission, Paris Exhibition, 1900, St. Stephen's House, Westminster, London, S.W.

CALOCHORTUS PURDEYI.—Among the beautiful exhibits of hardy and half-hardy plants of Messrs. WALLACE & Co., of Colchester, at the meeting of

the Royal Horticultural Society at the Drill Hall, Westminster, on June 14, were several of the earlier *Calochorti*, all of them very pretty and interesting when in flower. The flowers of *C. Purdeyi* are raised on 9-inch pedicels, and are silvery-white, and they are filled with what appears as a purplish haze, as seen through the numerous white hairs that line the perianth, and cover the petals (fig. 147, p. 395).

ROYAL HORTICULTURAL SOCIETY.—The next Fruit and Floral Meeting of the Royal Horticultural Society will be held on Tuesday, June 28, in the Drill Hall, James Street, Westminster, 1 to 5 P.M. The Rose Show, which was to have been held on this date, is now postponed until July 12. Will all intending exhibitors please note this? At 3 o'clock a lecture on "Some of the Plants Exhibited" will be given by the Rev. Prof. GEO. HENSLOW, M.A., V.M.H.

HORTICULTURAL CLUB.—The last monthly dinner and *conversazione* for the season took place on Tuesday, June 14. As usual at this time, the attendance was not so numerous as it generally is. The chairman of the Club, Sir J. D. T. LLEWELYN, Bt., M.P., occupied the chair, and a very interesting lecture was given by Mr. C. T. DRURY, V.M.H., on "Fern Variation in Nature and Culture." The lecture was illustrated by some remarkably beautiful illustrations of Nature-printed Ferns by the late Col. JONES, and gave rise to an animated discussion; a cordial vote of thanks was accorded to the lecturer. The Annual Excursion of the Club was fixed for July 19, of which members will receive full particulars in due course.

ROYAL SCOTTISH ARBORICULTURAL SOCIETY.—The Council of the Royal Scottish Arboricultural Society have appointed that a general meeting of the society shall be held in Edinburgh in Tuesday, August 2, 1898, at 10 o'clock forenoon. By special permission the meeting will be held in the Lecture Hall of the National Portrait Gallery, No. 1, Queen Street, Colonel BAILEY, President, in the chair. Members are invited to introduce ladies and other friends to the meeting.

—The Council have pleasure in intimating that, by the kind permission of Her Majesty's Commissioners of Woods and Forests, the twenty-first annual excursion of the society will be held on August 3, 4, and 5, 1898, in the Forest of Dean and High Meadow Woods, Gloucestershire, England.

CHISWICK.—We are glad to see that the Council has again invited the members of the council to inspect the gardens on July 5, and to lunch with them on the occasion. Progress in the right direction is also shown by the lectures to students which are in course of delivery by the Rev. Professor HENSLOW.

LINNEAN.—A special general meeting of the Society will be held on Thursday, June 30, at 8 P.M. precisely, when the following papers will be read:—Sir D. BRANDIS, K.C.I.E., F.R.S., F.L.S., "A Revision of the Genus *Elæocarpus*, Linn.; Mr. A. W. WATERS, F.L.S., "Observations on the Membraniporidae, a family of Marine Bryozoa;" Miss ETHEL S. BARTON, "On the Fruit of *Chnoospora fastigiata*, J. Agardh." At this meeting a ballot will be taken for the election of a Councillor, in the place of the late Mr. OSBERT SALVIN, deceased.

SCHUBERTIA GRANDIFLORA.—A correspondent points out the value of this plant for furnishing button-hole bouquets. It is more easily handled than the *Stephanotis*, and is more durable even in the city. The perfume is also very agreeable.

PITCHER ON LEAF OF CABBAGE.—Prof. WEISS, of Manchester, obligingly sends us specimens of this common malformation, in which the vascular bundles are arranged in a circle, and the intervening tissue forms a funnel-shaped cup. From the outer surface of this cup spring by enation numerous outgrowths, forming little frills.

REPORT OF THE MICHIGAN BOARD OF AGRICULTURE.—This is the thirty-fifth report of the

Secretary of the above Board, and with it is issued the ninth annual report of the Agricultural College Experiment Station from July 1, 1895, to June 30, 1896. The volume begins with a portrait and memoir of Mr. ENOS GOODRICH, an important man in Michigan, who died last October, just before the publication of this notice. The report of work done in the different branches or departments is lengthy and on the whole favourable; agriculture, forestry, engineering,

taught "the chemistry of the kitchen, floriculture, poultry raising, the care of bees, and the cultivation of small fruits." Also dairy-farming may be studied. Reports of the Experiment Station are those on field experiments; of the horticulturist on gardens and orchards, of the chemist, of the veterinarian, and of the botanist. The latter deals with seed investigation, plant diseases, work in the herbarium, and troublesome weeds. The entomologist and apiarist also publish

book:—"Taken altogether, the session's work (1895-96) was very satisfactory." Several "miscellaneous reports" complete the volume before us, from which we have no space to make further extract.

GRAFT HYBRIDISATION.—Every year we receive specimens of *Cytisus Adami* and its variations, and no wonder, for the occurrence is very extraordinary. Mr. DIVERS sends us from Pelvoir shoots bearing white flowers intermingled with red flowers on a Thorn. The tree has been grafted about 6 feet from where the white truss was produced. The same tree has also a pink truss. The facts here, though not so remarkable as in the *Adam's Laburnum*, are of the same character.

BORON FOOD-PRESERVATIVES.—In their zeal against adulteration the use of boron or boric acid (used from time immemorial with honey as an application to the throats of babies), has been condemned by certain persons. In fact, borax in the quantities usually employed is not only quite harmless, but useful as an antiseptic application. What would be the effect of a colossal dose we do not know, but we expect it would be considerably less than that of an equal quantity of nitre or of table-salt. A pamphlet on the subject, published by PERKINS, BACON & Co., 69, Fleet Street, may be read with advantage.

NINTH ANNUAL REPORT OF THE MISSOURI BOTANICAL GARDEN.—This volume, brought up to March 9 of the present year, contains the Director's Report on the Botanical Garden and Herbarium, the latter institution having, we learn, received some valuable additions lately. The garden also has increased, and is flourishing; and instruction to horticultural students, and in the school of botany, bore good results. Following Dr. Trelease's report are a paper by Mr. C. H. Thompson on "A Revision of the American Lemnaceæ occurring North of Mexico;" "Notes on *Salix longipes*, Shuttlw.," by N. M. Glatfelter; an elaborate "Revision of the Genus *Capsicum*," by H. C. Irish; "A List of Cryptogams collected in the Bahamas, Jamaica, and Grand Cayman," by A. S. Hitchcock; "Agave *Washingtonensis*, and other Agaves, flowering in the Washington Botanic Garden in 1897," by J. N. Rose. There are also articles on "Cacti commonly cultivated under the generic name *Anholonium*," by C. H. Thompson; "*Epidendrum venosum* of Florida," by W. Trelease; "Miscellaneous observations on *Yucca* and the Missouri Dogbanes," also by Mr. Trelease; "Colouring-matter found in some *Borraginaceæ*," by J. B. Norton; "Notes on Plants chiefly from the Southern United States," by J. B. Norton; "New Disease of Cultivated Palms (*Glœosporium Allescheri*, a palm-colour form of *G. sphaerelloides*)," by W. Trelease; and "*Parmelia molliscula*," by Henry Willey. The beautiful plates add much to the value of the book. Some are from most careful drawings, others from photographs.

PUBLICATIONS RECEIVED.—*Destruction of Charlock in Field Crops by spraying with Solution of Sulphate of Copper*, Reginald W. Christy and Thos. S. D. mond (Essex Technical Instruction Committee).—*Weather Influences on Farm and Garden Crops, and Report on the Phenological Observations for 1897*, by Edward Mawley—reprinted from the *Quarterly Journal of the Royal Meteorological Society*, April, 1898.—*The San José Scale, and its probable introduction into England*, by F. V. Theobald. Issued on the principle that "forewarned is forearmed," with electros supplied by the U. S. Department of Agriculture.—*Agricultural Gazette of New South Wales*, April, 1898. Includes articles on some Food Plants of the Aborigines, by J. H. Maiden; New Indigenous Food-plant, spotted Mellick; Weeds of N. S. Wales, Sheep's Burnet, Constitution of Wheat Gluten, Potato Culture, Propagation of Plants, &c.—*Contributions to the Flora of Queensland*, by F. Manson Bailey (extracted from the *Queensland Agricultural Journal*), vol. ii., part. 1. Fungi: *Uromyces*, *Phyllosticta*; Part 2, Palmæ: *Hydriastele*, *Archontophœnix*, and *Livistona*; Plants reputed poisonous to Stock (*Cycadaceæ*). Part 3, *Orchidæ*; *Liparis*, *Amary-*



FIG. 147.—*CALOCHORTUS PURDEYI*. (SEE P. 394.)

veterinary science, history, and political economy, being among the subjects studied. It is proposed by the Agricultural College to organise a ladies' course of instruction, students of both sexes to be instructed in "domestic economy. . . . Our experience in the management of students leads us to believe that the presence of ladies on the campus will be extremely helpful in elevating the moral tone of the students, and increasing their regard for the amenities of polite society." Further we read that ladies are to be

their reports here. The Bulletins include those dealing with *Crimson Clover*, &c., by A. A. CROZIER; *Inspection of Commercial Fertilisers*, by R. C. KEDZIE; *Dairy Records*, by C. D. SMITH; *Fattening Lambs*, by F. B. MUMFORD; *Fruits at South Haven*, by T. T. LYON; *Potatoes*, by L. R. TAFT; *Injurious Insects*, by G. C. DAVIS; *Tuberculosis in Cattle*, by E. A. GRABOE; *Pasteurisation of Milk*, by C. D. SMITH; and summary of *Meteorological Observations for 1895*. To quote some of the final words of the

Ilideæ, Cinnam; Fungi: Phyllosticta. Part 4, Myrtaceæ: Eugenia; Orchideæ: Dendrobium. Part 5, Pittosporæ, Pittosporum, Leguminosæ, Cistanospermum, Urticaceæ, Ficus, Aroidæ, Rhamphidophora.—*Twenty-first Annual Report of the Connecticut Agricultural Experiment Station for 1897.*—*Proceedings and Journal of the Agricultural and Horticultural Society of India for January to March, 1898.* Containing a report on a large and successful flower-show held in Calcutta in February.—*Journal of the Scottish Meteorological Society (Annual) for 1895-6.*—*Bullettino della R. Società Toscana di Orticultura*, Maggio, 1898.—*Le Moniteur d'Horticulture*, June 10.—*Journal de la Société Nationale d'Horticulture de France*, Mai.

ALBUCA PROLIFERA.*

I AM indebted to Mr. W. L. Turpie, of Port Elizabeth, for this interesting Cape bulb. When on a visit to his native city, St. Andrews, Mr. Turpie took note of my collection of *Albucas*, which included *A. corymbosa*, Baker (*Gardeners' Chronicle*, 1886, vol. xxvi., p. 38; *Flora Capensis*, vi., 457), a new species sent to me by Mr. Alexander Wilson from the same district. On his return, he found and forwarded to me the species now described. His notes regarding the habitat are as follows:—"Near Port Elizabeth, in the Baakens River Valley, about 1½ miles up. The river flows into Algoa Bay. The plant (the only one I had come across) was in flower, the stem and flower being 6 or 7 inches in height. The situation was on the slope of the sunny side of the valley; the soil was clay with slight indication of saltpetre. There is little rain, but plenty of dew in the mornings. This part is always exposed to the winds and heat. The cool stream is about 100 yards off."

Under cultivation, Mr. Turpie's bulb soon produced offsets, and a great number of bulbils as in fig. 148. I cannot be sure that in nature the plants will produce quite as many bulbils, but no doubt they will propagate themselves freely by this method as well as by seed.

The shoulder bearing the offset is an extension of the outer tunic, and vascular tissue forming a ridge runs up to its apex from the base of the bulb. Before long the offset puts forth roots of its own (fig. 149), and becomes separated from the parent by the decay of the outer tunic and shoulder. A new shoulder may be formed at another point by the younger tunic, and the process be repeated. In this way a single bulb, in course of time, produces offsets and bulbils in such numbers as to cover the surface of the pot. The bulbils usually break off at an early age.

The flowers (fig. 150) are not sufficiently numerous or striking enough to render this species a valuable garden plant; indeed, very few of the *Albucas* are of much use as decorative plants. Even *A. Nelsoni*, the finest of them, exhibits the undesirable feature, common to all, of remaining closed like a bud in dull weather. I may mention, however, that a ternary hybrid of my own, having *A. Nelsoni* in its parentage, shows a disposition to overcome this peculiarity.

The present species is one of the most diminutive of the genus. The flowers are commonly only three in number; they are, however, extremely fragrant. The fragrance is not perceptible when the flower is closed. I know of no species which exhibits in so marked a degree the separation of the inner segments

in strong sunshine. In many species separation does not take place at all, unless when an insect pushes a segment back for a few seconds to reach the honey at the base of the ovary. *John H. Wilson, D.Sc., St. Andrews.*

HOME CORRESPONDENCE.

OAK-CATERPILLARS, ETC.—It is well known that this and every other insect-pest varies in abundance, according to the year, and according to the locality. My experience this year, confined to two of the home counties south of the Thames, is that for many years past I have never seen the Oaks more free from insect attacks, or more healthy-looking in every respect. But unfortunately my experience does not appear to be generally shared. Having regard to the general devastation noticed for several years past, one cannot help marvelling at the vigour of the trees after so many repeated attacks on what should be almost a vital part of their economy. The season is backward, and it may be that the worst has not yet arrived; but I think there are sufficient indications that in some districts, at any rate, the energies of the trees in putting forth fresh leaves will not be called upon. The past winter should have been one of the most fatal on record for insects whose larvæ or pupæ hibernates (this scarcely affects the Oak-caterpillar). With regard to white butterflies, I may say that there is a strong suspicion that the swarms now seen in many places do not all consist of British-bred individuals. *R. McLachlan.*

CATERPILLAR AND THE BIRDS.—Your correspondent, "T. J. Levett," p. 384, sends a very interesting letter on the above subject. This district is famous for its Oak trees, and an old timber merchant assures me that, when Oak was largely used in the Royal dockyards, the timber grown upon the heavy land of this district was of the best quality, being easily worked and extremely durable. I do not share your correspondent's fears for the destruction of our Oak woods, as the British Oak, like the British man, is a very tough subject; and I notice that the midsummer shoots always seem to clothe the trees in spite of the ravages of the caterpillar, and even after the severe attacks of the past three or four years our trees show no lack of vigour. I fancy there has been a disturbance in the balance of Nature, caused by the severe winter of 1895, which from January until March kept the surface of the earth hard and bare, and thousands of insect-eating birds perished by cold in consequence. The caterpillar plague is not nearly so destructive on the Oak trees this year as in 1896 and 1897; and although we have several hundred Gooseberry-trees, I have seen no trace of the Gooseberry-caterpillar, thanks, I think, to an abundance of cuckoos. Our best practice is to protect and encourage the birds, and all of the varieties named by the Editor on p. 384 are our friends. I would also add chaffinches; but from a gardener's point of view, the only bird that I think necessary to destroy is the bullfinch. Provide plenty of netting, and protect your Strawberries, Raspberries, and bush fruit, as it is only during the ripe-fruit season that birds do damage to garden crops. Sparrows may require to be kept within bounds in some localities; but in truly rural districts, although they abound, they do us very little damage. I should advise your correspondent to join the Society for the Protection of Birds, and to instruct the children of the district in the habits and uses of birds in Nature. Mrs. F. E. Lemon, Hillcrest, Redhill, Surrey, is the Secretary to the above society, and will give every necessary information by circular and otherwise. *R. M., Newbury.*

INSECT PESTS ON FOREST-TREES.—With reference to Mr. T. J. Levett's remarks on the "Oak-leaf Roller Moth," in last week's *Gardeners' Chronicle*, it may interest him and relieve his anxiety to know that no permanent injury to the Oaks need be feared from these caterpillars. In this district (North Wilts) the Oaks in 1893 and 1894 were entirely stripped of their foliage by this pest, but during the last two or three years their number has been so small as to render their ravage imperceptible. In both of those seasons, however, the end of July again saw the trees covered by healthy foliage, the only ultimate result of the attack being a probable loss of growth in the wood-ring, the destruction of the acorn crop, and a late colouring of the leaves in autumn. The temporary nature of the injury is

chiefly owing to the fact that the leaves only and not the shoots or buds are eaten by the caterpillars, and therefore the normal development of the midsummer shoots after the larvæ have changed into the pupal state is not interfered with. This season our Oak foliage is particularly healthy, although occasional caterpillars may be found, but nothing approaching the numbers found in past seasons or existing in the districts from which your correspondents write. Their disappearance is probably due to insect or fungoid parasites, or, as in the case of the black Orchis-moth in Germany, to bacterial agency, which latter appears to be intimately connected with the biological phases of insect life. During the last two or three years the sandy soils round here have been infested with the grubs of the small cockchafer (*Phyllopertha horticola*), which destroy the roots of almost every shallow-rooting plant with which they come in contact. Larch and Scots Fir seedlings have especially suffered, while acres of pasture have been scratched up by rooks and pheasants in search of the grubs during the autumn months. This year the beetles seem more numerous than ever, and numbers of Ash-trees may be noticed almost eaten bare of foliage by them. Fortunately they are less voracious than the May-bug, or the plague would become an absolute calamity. As it is, the roots of perennial plants suffer badly from the grubs during the autumn, and the attack is too widespread, and of such a nature, as to render preventive measures impossible on a large scale. We can only hope for an epidemic to break out amongst them, which will, as it probably has done in the past, reduce their number to the desired extent. *A. C. Forbes.*

BULB MITE.—At Avery Hill, Eltham, the bulb mite infested a great many kinds of plants, and it was present on such diverse subjects as *Primula sinensis alba flore pleno*, *Echeveria fariouosa*, *Lobelia cardinalis*, and *Vallota purpurea*, which were so badly infested that they had to be burnt. *Eucharis grandiflora*, *Pancratium*, *Anthurium*, *Richardias*, *Streptocarpus*, *Caladiums*, *Gloxinias*, *Tulips*, *Snowdrops*, *Narcissus*, *Hyacinths*, were more or less infested, and reduced the numbers from hundreds to dozens, and in some instances all the plants succumbed. It was found that the soil was infested that was employed. [Bulbs and tubers sent by our correspondent were in a hopeless condition from the ravages of the bulb-mite, fully bearing out his statements. Ed.] The remedies that were adopted were as follows: all of the composts used for plants subject to the mite had freshly-slaked chalk-lime mixed with them, this being done some time before using. All sorts of plants do not like lime—but remedy before evil in this case. *Caladiums*, *Gloxinias*, and *Callas*, had black sulphur rubbed into the infested parts also while at rest, as in that condition mites were found on them. For *Vallotas*, *Primulas*, and *Echeverias*, liquid applications are best. *Eucharis* and *Pancratiums* can in every case be completely cured of the mite by the proper use of Cliban's Mite-killer. My method was to make the pot in which the plants was growing water-tight, and continue to fill it with the solution till it would take no more, and allow it to remain at least half-an-hour, and repeat the same process three or four times in twelve months, affording water afterwards at intervals of a fortnight or three weeks, and continuing this year in and year out persistently, and healthy *Eucharis* is certain—at least, such is my experience, the substance being a food for the plants, and death to the pest. All other preventive measures are useless. My experience with other liquids, such as paraffin and lime-water is not hopeful; the former is a failure, as it in time causes a souring of the soil, and it is better for outside use, good results accruing therefrom to *Narcissus* and *Tulips*. Lime-water is a good check to the spread of the bulb mite. *G. A.*

CAMELLIAS OUT-OF-DOORS.—Referring to the note on above signed "W. J. B.," I should like to say that a number of Camellias are planted out in the pleasure-grounds at Bystock, and during the hard winter of 1895, when the common Laurel and *Rhododendron ponticum* were dreadfully cut up, the Camellias did not suffer in the least; the leaves remained plump and green, the buds swelling in the spring just as usual. It was rather singular to notice also that whilst the common *Rhododendron ponticum* was much cut up, losing leaves and appearing shabby till the growing time came on again, the choice varieties that had been worked on the *ponticum* stock stood the weather, and were in no way injured by the severity of the frost or the severity of the east winds. *W. Swan, Exmouth.*

* *Albucca prolifera*, J. H. Wilson, n. sp.—Bulb globose or sub-globose, smooth, deep red, 1 to 1½ in. diam., invariably expanding at one side into a massive sub-cylindrical outgrowth, which bears an offset bulbil; tunics few, 4 to 5, thick; numerous small bulbils borne radially, on short attached stalks, around the base of the parent bulb; the offset bulbil on the shoulder commonly producing a lateral outgrowth with a bulbil, and this in its turn sometimes proliferating; leaves 4, linear, subterete or channelled, longest 12 to 18 in.; inflorescence 12 in.; peduncle 7 to 8 in.; bracts lanceolate, lowest 7 to 9 lines; pedicels erect, lowest 2 to 2½ in.; flowers 3 to 5, very fragrant, odour heliotrope-like; segments pure white, with narrow green median bands; outer segments 9 to 11 lines long, inner 7 to 8; outer stamens fertile, anthers ½ size of inner; ovary 3 lines long, style 4.

Baakens River Valley, Port Elizabeth, Turpie 1

CAMELLIAS OUTDOORS.—"W. J. B." puts in a kind word from Kew for Camellias as hardy shrubs. So much have people generally become accustomed to treating these plants as greenhouse shrubs, that they are alarmed at the suggestion to plant outdoors. No one in the kingdom, so far as I know, has ever been braver in this respect than the late Mrs. Eyre Crabbe of Southampton, and her now seed-gardener, Mr. T. Stewart. Mrs. Crabbe, who was a life-long very able gardener, used to refer almost contemptuously to the fears of persons to expose Camellias to outdoor culture. "Why," she would say, "they are hardier than Laurels," because Laurels made their new growths early, and often had them killed by late frosts, whilst Camellias made new growths later, and these escaped harm. Then the old wood and leafage seems impervious to injury from frost. Many of the huge plants that grow so freely at Glen Eyre, Southampton, and have been planted for periods of from ten to nearly forty years, are fully exposed to the weather, and even to hot sunshine. Others are planted on the margins of shrubberies, or back where they are less exposed to wind and sun; some planted and nailed originally to walls have grown out now densely, and are luxuriant. Anyone at all sceptical as to the fitness of Camellias for outdoor culture should visit Glen Eyre towards the end of April, when the plants are generally in bloom, and they would come away very much less so. The plants there in the blooming season may be said to furnish cart-loads of beautiful flowers. The soil is of a semi-peaty nature, in which Conifers and Rhododendrons thrive luxuriantly, and where trees break the force of north-easterly winds. The three or four large bush Camellias growing at the back of the long corridor house, and in a cold aspect on a stiff soil are remarkable illustrations of the adaptability of these shrubs for outdoor culture in the London district. They are, however, worthy of a better place and superior soil. No doubt when planted it was thought that the foliage would scorch in warm sunshine. It does not do so at Southampton. A. D.

THE GRAFTING OF THE GRAPE-VINE.—In reference to the articles which have appeared in these pages on the Vine and its habit changing under the influence of the stock on which it is grafted, and *vice versa*, it would be interesting to know if the flavour changes as well as the growth. It is just likely that the quality of many of our coarser varieties of Grapes could be greatly improved by a choice of certain stocks upon which to graft. But those who cultivate the Vine extensively will be able to advise on this matter, and many readers of the *Gardeners' Chronicle* will find pleasure and profit from reading such experiences. *Exelsior*.

PEACHES AT CLYNE CASTLE.—On the 14th inst. Mr. Foote was gathering his first Peaches, the variety being Hales' Early. The Peach-houses at Clyne Castle are span-roofed, and the early-house is 50 feet long by 14 feet wide, with a division in the centre. In the first half of this house there are four trees, including one of Hales' Early, one of Elruge Nectarine, and two of Bellegarde Peaches. The trees from which the fruits were being gathered carried some 250 fruits of fine size and quality. The tree of Elruge Nectarine was evenly set with about 300 fine clean fruits. The varieties growing in the second division are Princess of Wales and Lord Palmerston Peaches, with Lord Napier Nectarine, and the trees are well cropped. Mr. Foote lifted the whole of the trees some five years ago, making new borders 18 inches deep on a concrete-bottom. Some of his Princess of Wales Peaches last year weighed 13 oz. R. Milner, Penrice Castle Gardens.

NYMPHÆAS.—The rock-garden at Abbotsbury, Newton Abbot, S. Devon, is just now in splendid condition, for beside the alpine and herbaceous plants, which make a brave show, there is in the ornamental waters a very choice collection of Nymphæas, which at the present time are flowering in a very free and attractive manner. I have before me some flowers just cut and brought in, and as these are but samples of a vast quantity left, some idea may be gathered of this fine display. The first to call attention is *N. Marliacea rosea*, the largest bloom in the collection; this flower measures, when fully expanded, 9 inches in diameter, and is of a clear rose-blush, which, with stamens of bright yellow, produce a bloom of great beauty and attractiveness. *N. Marliacea carnea* is also of large size, and of a bright flesh colour. *N. Marliacea chromatella* is also a noble flower, of a beautiful bright yellow; the leaves also of this one are especially handsome, being spotted and marbled with a bronzy-brown. Another is *N. odorata sulphurea*, a flower considerably smaller—really a different type; these, however, are very showy, being

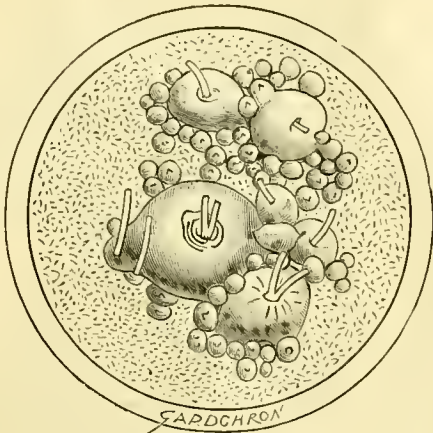


FIG. 148.—*ALBUCA PROLIFERA*: BULB WITH BULBILS.
(Seen from above. Reduced. See p. 396.)

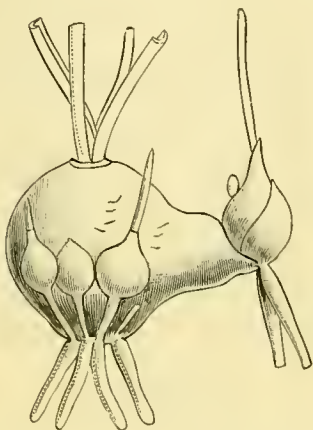


FIG. 149.—*ALBUCA PROLIFERA*, WITH ROOTING BULBILS.
(Nat. size. See p. 396.)

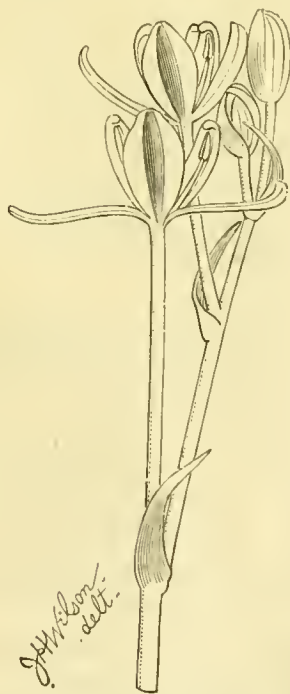


FIG. 150.—*ALBUCA PROLIFERA*: UPPER PART OF INFLORESCENCE.
FLOWERS OPEN IN SUNSHINE.
(Nat. size. See p. 396.)

of a bright yellow, the flowers rising several inches above the surface of the water, and are very fragrant. *N. pygmaea alba*, as its name denotes, is pure white, free in blooming, and very showy. These fine introductions of *M. Marliacea* deserve to be more universally grown than at present would seem to be the case. These at Abbotsbury have been in their present position some four years, and have withstood all weathers in that time without any kind of protection. Doubtless, in time they will become more frequently met with, and if a reference to their beauty and adaptability can help on this desirable end, my note will have answered its purpose. W. Swan, *Emmouth*.

FROST ON JUNE 15.—On the morning of June 15 one of our thermometers, suspended 4 feet above the ground, and fully exposed to the wind, registered 28°, or four degrees of frost. A fine piece of Snowdrop Potatoes was badly injured; but the growing points of the shoots having been uninjured, the tops have not ceased to develop. Some Ashleaf Potatoes, 10 yards away, on a south border, were unharmed. It is interesting to note how a very slight amount of shelter has warded off this frost. Two rows of Scarlet Runner Beans were furnished with stakes placed as usual on each side of the row, and meeting near the top, and of these rows only very few plants are killed; others, alongside of them, but not staked, have about ten times the number killed. Potatoes growing 4 feet away from pyramid Pear-trees, and on the lee side, are unharmed; while the tops of the plants in the next row, 2 feet further away, are cut. Our thermometer, in a Stevenson screen, only registered 33°, which is 5° above the one fully exposed, and the wind was north-east at the time; and this pattern of screen is said to be ventilated on scientific principles. The thermometer on the grass registered 30°. W. H. Divers, *Belvoir Castle Gardens, Grantham*.

FLOWERING AND FOLIAGE TREES AND SHRUBS.—When on the lawn recently at Dover House, Roehampton, I could not fail to notice three very special objects of beauty. The first was a noble and very deep-coloured purple Beech, one of the finest I have yet seen, and standing alone its splendid proportions are fully displayed. The second object was a handsome Judas-tree, then in full bloom, the pleasing soft rosy colour of the flowers, borne in rich profusion, not being a common hue in flowering-trees. Thirdly, on a wall, set in a dense framework of Magnolia and other green leafage, is a plant of *Viburnum plicatum*, literally a mass of white clusters of flowers. There is a smaller one at Chiswick also on a wall. Both are beautiful plants in that form of culture, and beds of it at Kew are masses of snowy flowers. A. D.

THE GARDEN CHARITIES.—Mr. Fletcher heads his note as above, and then goes on to discuss the advantages to be gained by subscribers in a truly mercenary spirit; and it is evident that if the subscribers are all of them to contribute to the various funds, from his point of view, the societies will cease to be "charities" altogether. I have read that we are to "lend, hoping for nothing again," also that "the quality of mercy is not strained, it droppeth as the gentle rain from heaven," and to coldly calculate how much each subscriber is to get out of the society is scarcely in accordance with these high precepts. The Gardeners' Orphan Fund is evidently alluded to, although no names are mentioned; but this fund is certainly not open to the charge of expensive management. It has no palatial offices, nor does it pay high salaries, and the whole expenses of collection and distribution are less than 12 per cent. of the money subscribed. It was instituted by the gardeners and horticulturists of Great Britain as a charity, and as a means of helping the children of their brethren in the profession, who might unfortunately be left without a father, not for the purpose of trying how much each subscriber could get out of it. I cannot think Mr. Fletcher is a gardener, or he would not make such statements as to a gardener's means, while I heartily wish every gardener had double his present wages. I speak from experience when I say that 90 per cent. of the gardeners who are in head places could easily lay by 1½d. per week for the Gardeners' Orphan Fund, and would not miss it at the end of the year; but when it comes to paying 5s. out of pocket all at once, it is sometimes more difficult. The Gardeners' Orphan Fund has done, and is still doing, a good work; none of the money subscribed is wasted, and if Mr. Fletcher will send in his name as a subscriber, he may yet

learn, "Blessed is he who considereth the poor and needy." W. H. Divers, *Belvoir Castle Gardens, Grantham.*

LAW NOTES.

THE WARRANTY CLAUSE.

HOWCROFT v. LAYCOCK.

THIS action, which came on for hearing in the Queen's Bench Division of the High Court of Justice, before Justices Day and Lawrence, was an appeal from the decision of his Honour Judge Lumley Smith, reported in these columns on April 30, raising a question with regard to the effect of a clause very commonly put at the head of seed-merchants bills. The clause was as follows:—"Messrs. — give no warranty, express or implied, as to description, quality, productiveness, or any other matter connected with the seeds they send out, and they will not be in any way responsible for the crop. If the purchaser does not accept the goods on these terms, they are to be at once returned." The evidence was to the effect that the plaintiffs had supplied some seed to the defendant's order. The order was for a species of Cabbage called *Couve Tronchuda*. The seed sent, when it grew, turned out to be Jersey Kale, a species of tree Cabbage, only suitable for making walking-sticks. The action was brought for the price of the seeds, and the defendant counter-claimed for breach of contract. The County Court Judge thought that the non-guarantee clause protected the plaintiffs, and but for that, he would have found for the defendant. Mr. Earle, on behalf of the plaintiff, contended that when in ordinary cases goods have been accepted, the purchaser could only recover for breach of warranty, but here, the purchaser had agreed not to raise any question of warranty, and therefore he had no remedy. It was an important matter for the seed-seller and for seed-growers all over the country. In this case the seed-seller had bought the seed from someone else, so that there was no imputation as to their *bona fides*. Seed would be very much dearer if the sellers had to guarantee it. Mr. Justice Day was of opinion that the County Court judge had been misled by a case which had no bearing on the question. The clause in question could not be construed to mean that no action should be brought. When *Couve Tronchuda* was ordered, the seed-sellers were not entitled to deliver something quite different. The custom of a trade might qualify a contract, but it could not destroy it. A rational construction must be put upon the words relied upon. The construction desired by the respondents to be established, was unreasonable. Mr. Justice Lawrence concurred, consequently the appeal was upheld. Leave to appeal was granted, if an indemnity as to costs were given by the plaintiff.

Obituary.

MR. THOMAS MARCH.—The recent death of this gentleman, who occupied the responsible position of Secretary to the Board of Green Cloth, and who had been in the service of King William IV., and of Her Majesty, during sixty-four years, recalls to mind the March flower-stands, designed by Mr. March, and very much used in the sixties and onwards at the Royal Horticultural Society's exhibitions, South Kensington, and elsewhere. The Queen, the *Court Circular* notes, much regrets the loss of an old and trusted official, who for many years had rendered valued service in positions of great responsibility in the royal household. *J. B.*

PROFESSOR ANTON KERNER RITTER VON MARILAU.—The death of Prof. Anton Kerner Ritter von Marilaun is announced at the age of sixty-seven. Professor Kerner was educated for a doctor, and was indeed for two years on the medical staff of the Vienna General Hospital. But he soon abandoned medicine for the pursuit in which he was to acquire fame. He wrote many works on botanical subjects, and was made a member of the Vienna Academy of Sciences in 1872, while he received the order of knighthood in 1876. He is best known in this country by his *Natural History of Plants*, the English edition of which was edited by Professor F. W. Oliver, M.A., D.Sc.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JUNE 14.—J. T. BENNETT-POE, Esq., in the Chair.

"Silver" Leaf Disease.—Specimens of this disease on Plum-trees were received from Mrs. Floyer, Basingstoke. The disease is known to be very common on Pomaceous plants, the silvery appearance being due to the raising of the epidermis from the underlying tissue. The disease is very fatal both indoors and out, and is in all probability attributable to the growth of a fungus, the nature of which has not yet been ascertained.

Apple-leaves.—Some leaves probably injured by frost or scald from the effect of the sun shining on a damp surface were also sent.

Plant Diseases.—Dr. William G. Smith reports as follows on the specimens submitted to him:—

Pecunia Disease.—From a further specimen of this disease I have confirmed my previous opinion. The latest specimen sent bore the fructifications of a fungus which I hope to have identified. The diseased tissues contain abundant mycelium, and the starting point for attack was from last year's old wood. I shall be glad to communicate further results later.

Begonia-leaves.—From the material sent by Mr. Caddy it was difficult to say really what was the cause of disease. One or more fungi were easily developed on the withering leaves, but whether these were saprophytic on the dying tissue or were the cause of trouble, it is not safe to say. Begonias of this class are so liable to wither at the margins (from draughts, &c.), and are so unsuitable for transit to a distance, that accurate observation can only be made on plants in their actual habitat.

Fungus on Thuya (Biota).—The plants sent were attacked by *Pestalozzia funerea*, Desm., a fungus well known to occur on dying Thuyas and allies. The life-history is, however, imperfect.

Cytisus Adami.—Mr. Herbert E. Brooks sent specimens of the curious *Cytisus Adami*, a well-known "graft hybrid," as it is supposed to be, for M. Adam budded *C. purpureus* on *C. Laburnum* in 1825. The purple and yellow flowers are of the true species, but the brick-red flowers are from the hybrid. It was described in the *Gardeners' Chronicle*, 1841, p. 325, 336; 1842, p. 397, and often subsequently. The fullest account is in Braun's *Rejuvenescence*, 1851 (English translation, 1853); in Prof. Morren's paper in the *Belyique Horticole*, 1871; and a summary of the whole subject is given in Darwin's *Variation of Animals and Plants*, vol. i., ed. 2 (1-75), p. 413.

LINNEAN.

JUNE 16.—Dr. A. GÜNTHER, F.R.S., President, in the Chair.

Professor A. G. Farmer, F.L.S., and Mr. W. G. Freeman, F.L.S., demonstrated the action of germinating Peas, Cress, and Barley, in causing the deoxidation of a watery solution of methylene-blue to a colourless liquid on shaking up the latter with air, while on adding a drop of hydrogen peroxide the blue colour was restored. Green plants placed in the solution were found to act in a manner precisely similar to the seedlings, though the action may be modified by assimilation in sufficient light. A number of experiments were shown.

A discussion followed, in which Mr. Bennett, Professor Howes, and Mr. Thomas Christy took part.

Mr. F. Enoch, F.L.S., exhibited and made remarks on the eggs of an Hemipterous insect containing living parasites (*Prestwichia aquatica*), of whose life-history and habits he gave a detailed account.

Professor Herdman, D.Sc., F.R.S., exhibited some dissections, microscopic preparations, and drawings, to illustrate the presence of modified pedal-muscles in the oyster.

Mr. Miller Christy, F.L.S., read a paper entitled, "Observations on the Seasonal Variations of Elevation in a Branch of a Horse-chestnut Tree."

A paper was read by Mr. G. W. Carpenter, B.Sc., "On Pantopoda Collected by Mr. W. S. Bruce in Franz-Josef Land," in which he recorded the existence of eleven species, one of which he described as new. Of this, *Nymphon piliferum*, a detailed description was given; as of a new variety, *Nymphon piliferum* var. *abbreviatum*.

A paper was read by Mr. J. E. Duerden "On the Morphological Relationship of the Actiniaria and Madreporaria."

Dr. C. Forsyth-Major communicated a paper "On some Fossil Leporines," an abstract of which was given by Professor Howes.

At the conclusion of the proceedings, the President referred to the loss which the Society had sustained by the recent death of Mr. Osbert Salvin, M.A., F.R.S., F.L.S., a member of the Council; and announced that a special general meeting would be held on June 30 for the purpose of electing a new Member of Council to fill the vacancy thus created.

EDINBURGH FIELD NATURALISTS' AND MICROSCOPICAL.

LAST Saturday, June 18, this Society had a joint excursion with the Kirkcaldy naturalists to the Island of Inchcolm.

The party numbering forty, after visiting the remains of the old monastery and the little stone-roofed building identi-

fied by Sir James Y. Simpson as the hermitage of King Alexander I., and said to be the oldest stone building in Scotland, examined the flora and geology of the island. Most of the plants are uncommon, and such as would likely be used by the monks for culinary or medicinal purposes. Among the most noticeable were *Verbascum thapsus*, *Conium maculatum*, *Artemisia absinthium*, *Ligustrum scoticum*, *Anchusa sempervirens*, *Atriplex arenaria* (*Atropa belladonna* and *Hyoscyamus niger*, though said to be on the island, were not found). Many of these plants are still used medicinally. *Verbascum thapsus* having again recently attained a reputation as a remedy for phthisis. The geologists collected a number of specimens of pterite, a rock resembling a dark coloured green stone in appearance, and consisting very largely of olivine. There are only two localities near Edinburgh where this rock is found, viz., at Blackburn near Bathgate, and on the island of Inchcolm, where it was discovered in 1880 by Sir Archibald Geikie.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JUNE 16.—The Members of the Committee present on this occasion were Mr. W. Thompson, chairman, Mr. G. S. Ball, vice-chairman, Messrs. S. Gratrix, A. Warburton, J. Leemann, H. Bolton, W. Holmes, P. Weathers, Thos. Mills (Hon. Sec.). This was undoubtedly the best show yet brought together since the formation of the Society, no fewer than three very praiseworthy groups being staged by amateurs.

Mr. A. WARBURTON, Haslingden (gr., Mr. T. Lofthouse), had one of the best in point of size and richness, in which were included such choice things as *Odontoglossum excelsum* var. *Thompsoni*, with a spike carrying twenty-two flowers, *O. Vuylstekianum*, which is a yellow form of *O. luteo-purpureum*, with fifteen flowers, *Laelia purpurata* Backhouseana, a very handsome form, with petals having dark-coloured stripes; *Laelio-Cattleya* × "Bertie Warburton," the parentage of which is doubtful, but which may be *L. purpurata* × *Mossiae*, of which other hybrids are known, was a conspicuous plant in the group. There was also a magnificent specimen of *Brassia verrucosa* with twelve enormous flower-spikes, which, if not the most valuable, was certainly one of the most beautiful subjects in this interesting group. Other good things were *Laelia purpurata* var. *fastuosa*, *Cattleya Mendeli* var. *Aurora*, the latter having pure white sepals and petals with a streak of almost purplish-blue running through the centre of either petal. *Laelio-Cattleya* × *Lady Wigan*, *L.-C.* × *Iolanthe*, *L. purpurata* *Hardyana*, a good strain of *Cattleya Mossiae*, a well-grown piece of *Dendrobium Jamesianum*, *Epidendrum vitellinum majus*, and some remarkably good *Thunias* were included in this group (Silver Medal).

Mr. JOHN LEEMANN, Heaton Mersey (gr., Mr. Edge), also staged a fine group of plants, consisting of fine *Cattleyas*, *Odontoglossums*, *Dendrobiums*, and *Cypripediums*. One of the finest things undoubtedly was his *Odontoglossum crispum* var. *grandiflorum*; the flowers were rather over 4 inches in diameter, of remarkable substance, the purest of white, and of the form accepted by connoisseurs to be the best. Another good plant in this group was *Cypripedium Goweri*, a form very rich in the colouring of the dorsal sepal. *Cattleya Mossiae grandiflora*, notable for its fine size and colouring; *Odontoglossum Wilckeanum* var. *nobilior*, with a fine spike of rather pale flowers. A Silver Medal was also awarded to this group.

Mr. G. SUORLAND BALL, Wilmslow (gr., Mr. Hay), staged a nice interesting group of plants, the most notable of which were two wonderful specimens of *Dendrobium Falconeri*, bearing over 700 flowers between them; both plants were perfect pictures, and if Mr. Hay can continue the successful cultivation of this difficult subject, he should be congratulated. An interesting plant was a species of *Zygopetalum*, which was introduced in an importation of *Cattleyas*, doubtless one, a *Pescatorea*, now placed under *Zygopetalum*. It is a very handsome flower, possessing a creamy ground with reddish-brown markings. There were also some well-grown *Dendrobium Dearei*, *D. Jamesianum*, and a very pale variety of *Cypripedium Curtisii*.

Mr. S. GRATRIX, Whalley Range (gr., Mr. McLeod), showed a very interesting form of *Cypripedium Lawrenceanum*, which at a first glance strikes one as *C. L. Hyeannum*, but it differs entirely in the petals, it has none of the warts visible in that variety, and is peculiarly striated with a dullish white and green; this seems to be quite a new feature in *C. Lawrenceanum*, and the plant is undoubtedly a valuable acquisition. *Cattleya Mossiae* var. "Cahuzac" and *C. M. Rappartiana* came from the same collection.

MESSRS. F. SANDER & CO. sent two good hybrids, viz., *Laelio-Cattleya* × "Duke of York," a lovely thing between a fine form of *L. elegans* × *Cattleya Brymeriana*, the latter itself a hybrid between *C. Eldorada* × *C. superba*—the colouring is of rich purple, and the flower well shaped and compact; and *L.-C.* × "Lily Measures," another product from an artificial and a natural hybrid, viz., *L. Arrodiana* × *L. Gottleiana*.

MESSRS. STANLEY MOBBS & ASHTON made their debut as a new trading firm. Mr. Ashton was until recently the managing partner of Messrs. W. L. Lewis & Co., of Southgate; he has now, in conjunction with Mr. Stanley Mobbs, taken over the business, and will no doubt make headway, especially if the quality of their goods are equal to those shown at Manchester. From this firm came a splendid collection of their strain of *Cattleya Mossiae*, all good and worth showing, the best being *Cattleya Mossiae*, "Sir Thomas

Lipton," named, I believe, after a new patron of Orchid-culture. This variety belongs to the Reineckiana section, but it is quite distinct in the lip, having a striking break in the colouring, and the flower is of massive proportions.

Messrs. LINDEN, Brussels, were again to the fore with good Odontoglossums, *O. crispum* "Morning Star" being a very charming variety. The segments have large blotches, punctured all round with tiny spots. *O. crispum* "Le Czar" is also a good form, with large blotches on the sepals only. *O. crispum* Dallomagne, a very heavily-blotched variety.

AWARDS.

First-class Certificate.

G. Shorland Ball, Esq., for *Zygopetalum* species.
Messrs. F. Sander & Co., for *L. C. Duke* of York.
Duncan Gilmore, Esq., for *Cattleya Mossie Wagneri*.
Wm. Bolton, Esq., for *Cattleya Mossie Rappartian*.
M.M. L. Linden et Cie., for *Odontoglossum crispum* Morning Star.
A. Warburton, Esq., for *Laelio-Cattleya Bertie Warburton* and *Odontoglossum Vuylstekianum*.

Award of Merit.

John Leemann, Esq., for *Cypripedium Goweri*, *Odontoglossum crispum grandiflorum*, *O. crispum* (no varietal name), *O. Wilckeanum nobiliss*, *Laelio-Cattleya* × *Canhamiana*, and *Cypripedium Mendeli*.

Messrs. Stanley Mobbs & Ashton, for *Cattleya Mossie Sir Thos. Lipton*.

Duncan Gilmore, Esq., for *Cattleya Mossie Joan of Arc*.

Wm. Bolton, Esq., for *Cattleya Mossie Mrs. Bolton*.

M.M. Linden et Cie., for *Odontoglossum crispum* Le Czar and *O. c. Dallomagne*.

Samuel Gratix, Esq., for *Cypripedium Lawrenceanum* Gratixianum and *Cattleya Mossie Cahuzic*.

A. Warburton, Esq., for *Laelia purpurata* var. *fastuosa*, *L. p. Backhouseana*, and *Odontoglossum excellens* Thompsoni.

Cultural Certificate.

G. S. Ball, Esq., for *Dendrobium Falcencri*.

Vote of Thanks.

Messrs. Stanley Mobbs & Ashton, for group.

S. Hinchcliffe, Esq., for a wonderful form of *Dendrobium Dalhousianum*. *P. H.*

NEWCASTLE AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.

JUNE 14.—The usual meeting of this Society was held at 25, Westgate Road, on the above date. The chair was taken by Mr. JAMES NICHOLSON, and there was an excellent attendance of members.

The monthly competition was for *Gloxinias*, which was won by Mr. JAMES RENWICK, Oakwood, who staged a pair of very creditable plants. Mr. LEONARD, Gateshead, read a very interesting paper on "The roots of plants and how they feed," which was followed by a discussion, in which many took part.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

JUNE 20.—The second meeting of the summer session of the above was held in the Club-room on the above date, when Mr. Turton, the Chairman of the Association, presided over a good attendance of members.

The subject chosen for the evening was "vegetables in season," introduced by Mr. H. Wilson, gr. to Mrs. Bland-Garland, Lower Redlands, Reading. The varieties principally touched upon were Asparagus, Cabbage, Carrots, Mushrooms, Tomatos, Turnips, French Beans, Vegetable Marrow, Peas, Lettuce, Broad Beans, Cucumbers, and Potatos. A profitable discussion took place, some fifteen to twenty members giving their experience with regard to the various kinds referred to.

Some exhibits came from Mr. Townsend, gr. to Sir W. Farrer, Sandhurst Lodge, consisting of tropical and hardy Nymphs. Mr. WILSON showed excellent specimens of Sutton's First-crop Cauliflower, Snowball Turnip, Champion Horn Carrot, and several Lettuces. Mr. TURTON, gr. to Maiden Erlegh, showed a good sample of Ringleader Potato; Mr. Smith, gr. to Miss NIEL, Greenbank, nine bunches of Pansies, distinct varieties; Mr. OSBORNE, jun., a plant of *Streptocarpus*, a cross between *S. Wendlandi* and one of the hybrid strain.

SHIRLEY AND SURROUNDING DISTRICT GARDENERS' AND AMATEURS' MUTUAL IMPROVEMENT.

JUNE 21.—The monthly meeting of the above Society was held at the Parish Room, Shirley, Southampton, on the above date, there being a fair attendance of the members; the president, W. F. G. SCHAEGER, Esq., presided.

FRANK PERKINS, Esq., M.R.A.C., gave an interesting lecture entitled "Some Asiatic Plants noticed in the course of travels in Japan, China, and Ceylon," the same being most profusely illustrated with lantern views of tropical vegetation, giving one an admirable idea of the gigantic proportions the vegetation of that part of the world attains to. The lecturer's remarks on Tea, Coffee, and spice plantations in Ceylon were especially interesting, showing the advance made there in the

culture of Tea, especially during the past few years. He also turned his attention to the Palms, Bananas, &c., the slides helping to give point to the remarks on their elegance and stature.

A vote of thanks was accorded to Mr. PERKINS at the close of the lecture.

There was a good display of Roses sent by Mr. W. H. ROGER, Red Lodge Nursery.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

DEVON AND EXETER AUXILIARY.—President, C. R. COLLINS, Esq., Hartwell House, Exeter.

The Committee, in presenting their report for the past two years, beg to thank the various subscribers for their valued support, to tender their sincere thanks to the Right Worshipful the Mayor of Exeter for the use of the Guildhall for the inaugural meeting, and for the great interest his worship and the Sheriff took in making it such a success; and to thank the Secretary and members of the Devon and Exeter Horticultural Society for the permission to hold a stall at their summershow of 1896, which resulted in a profit of £15 2s. 7d.; at the same time they regret it was found impossible to grant permission to hold it the next year. The best thanks of the committee are also due to Madame Bryce and her lady assistants for the great interest they took in the management of the stall, and the able manner in which they carried out the work connected with it, and to the generous donors of fruit, flowers, &c., for the stall. The committee cannot but express their disappointment in the manner in which support has generally been accorded to the Society in Devonshire, and would again point out the great advantage it is to a gardener to become a subscriber, especially to one who subscribes early in life; and also to ask the help and sympathy of those who can afford to lend a helping hand to so deserving a cause. A society such as this should recommend itself to all gardeners, and to all lovers of horticulture.

As will be seen by the balance sheet, the first year resulted in the addition of thirteen new subscribers, and enabled the local Society to make one Life Member by ballot. The second year two new subscribers were added and two ballots taken, one of which was not taken up, but the member has become an annual subscriber. The Society is now in a position to take a further ballot, and will do so at once; members should therefore send in their subscriptions immediately, to enable them to participate. Of the balance in hand £22 will be at once handed over to the parent Society, *W. Mackay, Hon. Sec. and Treasurer, 26, High Street, and Royal Nurseries, Exeter*.

This branch of the Institution has been formed for the purpose of diffusing information regarding its work amongst gardeners, market gardeners, nurserymen and seedsmen, and to bring more prominently before those interested in horticulture, and the benevolent public in Devonshire, its claims for increased support; and also to help forward the candidature of any distressed applicant from the county.

Amongst the pensioners now on the funds are three who reside in the city of Exeter.

DR. BALANCE SHEET, 1896-1897.		
To Printing and Stationery	...	£7 0 0
Books	...	0 13 0
Cheques	...	0 2 0
Expense of St. H at Show	...	1 0 1
Postage	...	2 1 0
Remittance to Parent Society	...	60 15 6
Balance in hand	...	18 17 1

CR.		£90 8 8
By Donations	...	£6 6 0
Local Members' Subscriptions	...	5 0 0
Sales at Show Stall	...	16 2 8
Life Members	...	42 0 0
Annual Subscribers	...	15 15 0
Mr. Moore—completion of Life Membership	...	5 5 0

DR. BALANCE SHEET, 1897-1898.		£93 8 8
To Ballot Balls	...	£0 5 0
Remittance to Parent Society	...	16 3 0
Balance in hand	...	25 8 7

CR.		£41 16 7
By Balance in hand	...	£18 17 1
Donations	...	6 2 0
Local Members' Subscriptions	...	1 2 6
Annual Subscribers	...	15 15 0

CHISWICK GARDENERS' MUTUAL IMPROVEMENT.

THE members of this society, which includes in its range not a few of the Kew students, as well as those of the Royal Horticultural Society's Gardens, and gardeners of the locality, have been specially favoured by the Rev. George Henslow with hearing a course of four lectures, the first of which was given in the great Vinery in the gardens on the evening of Wednesday, the 8th, the subject being "Vegetable Physiology." The attendance numbered nearly sixty, and included three lady students from Kew. Mr. W. MARSHALL, member of the

Royal Horticultural Society's Council, presided. Admirable as was the place of lecture, sound was somewhat marred by that inveterate echo which seems ever present when the voice is raised in that huge building. Still, every one could hear the lecturer fairly well. Generally, the address dealt with various points in the subject of physiology, as these were not essentially connected, yet the seed of a plant, its formation, essentials to promote germination, air, warmth, moisture, the inevitable tendency of the radicle to grow earthwards, and the plumule upwards to the light, were well explained. The nature and functions of the root-cap and of the root-hairs were also shown, being especially aided by excellent drawings. Diverse forms and habits of roots were described. Leaves and their functions, respiratory powers, exhalation of oxygen, and absorption of carbonic-acid gas, led up to an interesting exposition of the results of experiments with divers coloured glass on seed-germination and plant-growth.

The lecture was followed with close interest, many present taking notes; and it is believed that when the next Royal Horticultural Society's examination takes place, the Society will furnish a large body of candidates.

Mr. Henslow's lecture on Wednesday last was on "The origin of diverse garden vegetables."

ENQUIRY.

VAPORISATION WITH "XL ALL."—A correspondent "B. W." would be obliged if some of our correspondents would kindly inform him of the action of the XL-all vaporiser on Muscat of Alexandria Vines. What stage of growth the berries were in at the time it was used, and if any harm followed. Whether Black Hamburg Vines can be vaporised with XL all at any stage of growth.

AZALEA INDICA FROM THE OPEN GROUND.—We have lately received from Mr. Foote, gardener to W. G. Vivin, Esq., Clyne Castle, Swansea, a quantity of sprays of *Azalea indica* in variety, all very lovely, which had been taken from bushes planted out-of-doors at that place. The blooms were evidently produced abundantly, and they were of fair size. Gardeners do not as yet seem to recognise the usefulness of *Azalea indica*, in all its varieties, as a subject for the American garden in the milder parts of Britain. (See note on p. 392.)

NOTICES TO CORRESPONDENTS.

ANTS IN A PEACH BORDER: *T. H.* You might destroy them by puffing the fumes of Richards' XL All into their holes with a pair of fumigating-bellows, allowing the stuff to form a vapour in an almost close box, and drawing it up with the bellows, and discharging it into the ant's holes, which should be then closed with soil, &c. Rags dipped in petroleum and stuffed into the holes would drive them away, and shavings dipped in gas-tar and laid along at the foot of the wall would have the same effect.

ATLAS CEDAR: *W.* The leaves of the Cedar or Deodar, though called evergreen, are only relatively so, they fall off after a few years, and if they happen to do so before the new ones are formed, the tree has a bare appearance. There is nothing to cause apprehension about your tree. It will resume its beautiful appearance later on.

CUCUMBER: *Gilbert.* The roots of your plants are infested with eel-worms, minute creatures that require a microscope to enable you to see them. They come in the soil, so your only remedy is to destroy your plants by fire, and start afresh with fresh soil which you will do well to bake before using, or sterilise it by pouring boiling water on it.

CUCUMBERS: *H. J. C.* The first stopping of the stem should take place when the latter has got 6 inches higher than the trellis. This will give you from four to six shoots that will form the ground-work of your plant; and each of these shoots may be stopped once more when they have got half-way to the margin of the trellis. No fruits that show need be removed unless very numerous or deformed. The same kind of training and stopping holds good of plants running on the soil in a hot-bed, pegs being used instead of ties to keep the shoots in place, and each shoot by forming roots in the soil at the pegged parts is made an independent plant. Hence Cucumber plant cultivated in that manner are longer lived than trellis plants. After a plant has borne fruits for some months it becomes exhausted, but it may have its vitality renewed by severely cutting back the old bins, and by affording

top-dressings of fresh horse dung and loam. This kind of renewal is also carried out during bearing by the removal of the oldest and least fruitful parts of the bine, and laying in new shoots. When fruits come on short side-shoots, the latter may be stopped one or two leaves in front of a fruit, although we do not think much good results from doing so. When, on the contrary, fruits show on a main-shoot, no stopping can necessarily be done, and yet the fruits grow to perfection. Excessive stopping leads to a multiplicity of useless shoots and leaves, and considerable subsequent mutilation of the plant. It may sometimes occur that Cucumber-plants have to be lead along one or two lengths of wire at the back of a plant or pine-stove, or pit; and in that case the plant is stopped once when it reaches the wires, and one or two shoots are taken to the left and the right hand. Such shoots may be stopped at every 3 feet, and the laterals allowed to droop.

CUSTARD-APPLE: *T. R.* As you do not know the species of Anona of which you possess seedlings, it will not pay to continue to grow them. The best fruiting species grow into bushes or small trees from 10 to 15 feet in height.

DEATH OF GOOSEBERRY-BUSHES WHOLLY OR IN PART: *T. R.* Sometimes "red rot" is the cause, and then their destruction is very rapid; at other times it is brought about by a fungus, *Polyporus ribis*, which appears at the lower end of the stem. It is woody, in colour red-brown, of irregular shape, and 4 to 5 inches across. A white aphid, with a wax-like coat, sucks the roots (*Schizoneura grossulariae*, Schüle). You will have to ascertain which of these is causing the loss of the bushes. In the above cases of disease there is no known cure.

DISEASED PEAS: *Cymro.* The plants sent are attacked by a mildew-fungus. The fact that other varieties near them are quite healthy indicates that your soil is too stiff, or in some other way unsuitable for this particular variety. The "clubbing" of Brussels Sprouts has nothing to do with this fungus on the Peas; both diseases are probably due to defective drainage of the stiff clay.

DOUBLE-FLOWERED APPLE: *J. B.* An excellent specimen of a not uncommon occurrence (see fig. 151). You will see first of all that the growth is of this season—a mid-summer shoot—the flower-stalk does not expand into an Apple or pome, the five sepals are perfect, and there are numerous white petals, some few malformed stamens, and no fruit. The specimen is very interesting, but not to the fruit grower.

DRIED PLANTS: *J. H. M.* Judging from your description the specimens are of little or no value as botanical specimens. As fancy articles for bazaars or similar purposes, they might be of service. No. 111. is the most valuable, according to your account.

ERRATA: **HORTICULTURAL SHOW AT PENZANCE.** See our last issue. Instead of Mr. G. Brann, Senr., gardener to J. Brannwell, Esq., read Mr. G. Brann, Senr., gardener to Thos. Brannwell, Junr., Esq., Penzance.

GARDENERS' BENEFIT SOCIETY: *A. B. C.* The secretary of this excellent and economically-managed benefit society is Mr. W. Collins, and his address, 9, Martindale Road, Balham, London, S.W.

INSECT IN PEAR: *Edward Mann.* *Anthonomus pomorum*, Apple and Pear weevil. Use grease-bands on the stems as for winter moth, to prevent the females climbing into the trees; scrape off all rough bark, and catch the weevils by spreading a sheet beneath the tree, and tapping the latter smartly to cause the insects to fall, which they do quite readily. Remove the upper crust of soil beneath the trees, and bury it deeply elsewhere.

MANURES: *Experimental Student.* **Question 1.** Can I mix superphosphate of lime with superphosphate of bone together without any chemical action ensuing; if so, may I add to the mixture sulphate of ammonia and sulphate of potash? *Answer.* If both the mineral superphosphate and the raw bone superphosphate are well made (that is say, if obtained from a reliable firm) there can be no ill-effects from the mixing of the two together, although there may be a slight loss of plant-food. What happens is this—a certain quantity of the ammonia which is produced by the decomposition of the ossein of the bone combines with some of the soluble phosphoric acid previously formed, with the result that the phosphate of ammonia reacts upon some of the sulphate of lime in the

mixture, and leads to the formation of a quantity of insoluble phosphate of lime equivalent to the amount of ammonia evolved. A very cheap mineral superphosphate, containing much free sulphuric acid, should be avoided for mixing with bone.—**Question 2.** I know I can mix either sulphate of ammonia or potash with lime superphosphate, but am told that I cannot mix lime superphosphate with pure raw bones, but that I may mix lime superphosphate with bone superphosphate. *Answer.* The same thing happens, but in an aggravated form, when sulphate of ammonia is mixed with free sulphuric acid found in the poorer classes of mineral superphosphates. No change will be made in the sulphate of potash.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*W. H. D.* 2, *Veronica Teucrium* var. *alba*; 3, *Crambe cordifolia*.—*Claud Lonsdale.* The shrub is a species of *Cornus*, and the herb a species of *Stachys*, probably *sylvatica*. Send when in flower.—*Salonica.* A form of *Centaurea calcitrapa*, with an abortive flower-head.—*C. Jones.* Without seeing the leaves the *Saxifraga* cannot be identified.—*C. A. B.* 1, *Tradescantia virginica*, white var.; 2, *Ranunculus acris*, double fl.; 3, *Stenactis speciosa*; 4, *Thalictrum aquilegifolium*; 5, *Polemonium coeruleum*, white var.; 6, *Hemerocallis flava*.—*W. K.* 1, *Cotoneaster affinis*; 2, *Calycanthus floridus*; 3, *Spiraea arifolia*; 4, *Lonicera*? 5, *Buddleia globosa*; 6, *Olearia Haasti*, all wretched specimens.—*A Price's Candle-box* has been received with no name of the sender, and no numbers attached to the specimens. One is *Hes-*

tures from 15° to 20° below the prevailing warmth of such a house. The plant would do better in a common garden-frame, placed over an excavated space, say, one foot deep, with a provision for affording air near the ground level, the frame being placed on the north side of a building or high wall.

PEACHES: *T. F.* The Peaches sent were of large size, and good eating, despite the comparative absence of colour in the skin from having been borne on a shaded part of the trellis.

PROLIFEROUS ROSES: *C. B.* These are not uncommon. The flower is a branch, and sometimes it produces additional terminal and side branches, and these are prolific roses.

RUST ON THE LOGAN-BERRY: *R. B. F.* The same *Ecidium* which infests the Rose; and the same means as gardeners adopt to rid their bushes of this beautiful but injurious pest must be taken.

TOMATOS: *Burns, Chichester.* Your fruits are affected with "spot," caused by the fungus *Cladosporium*. Remove every fruit attacked, and burn as soon as the circumstance is observed. Why the fruits generally are small we cannot advise you; but it must be due to certain details in your cultivation being defective.—*Amateur.* In your case the trouble is due to the fungus *Peronospora*, similar to that which attacks the Potato. Remove and burn every leaf attacked, and afterwards, provided the fruits are not near ripening, spray the whole of the plants with the Bordeaux Mixture.

VINE: *Amateur.* If you train the Vine on what is



FIG. 151.—A DOUBLE-FLOWERED APPLE.
(See *J. B.* in "Answers to Correspondents.")

peris matronalis, the single-flowered Rocket, *Spiraea media*, and two Medlars or species of *Crataegus* closely allied.—*J. C.* *Listera ovata*, the cut-leaved Lime.—*S. M.* *Adiantum capillus veneris* *Daphnites*.—*W. T. N.* *Scilla peruviana* of gardens, not a native of Britain nor of Peru, but the name cannot be changed now.—*E. S. R.* 1, Spanish Iris, which we cannot name; 2, *Iris graminifolia*; 3, *Lilium umbellatum*; 4, seedling Iris, which we cannot name; 5, *Veronica gentianoides*; 6, *Lonicera sempervirens*; 7, *Helianthemum* sp.—*A. S. C. J.* 1, *Asplenium marinum*; 2 and 4, *Lastrea dilatata*; 3, *Athyrium filix-femina*.

NATIONAL DAHLIA SOCIETY: *Kent.* T. W. Girdlestone, Esq., Sunningdale, Berks, is the secretary. Dahlias are shown at most autumn provincial shows, the dates of which will be given in advance in these columns. As a Kent gardener it should be an easy matter to ascertain the dates of those occurring in that county.

ORCHIDS BOUGHT IN BUD FLOWERING IN A GREENHOUSE: *Amateur.* *Dendrobium nobile*, *Lycast Skinneri*, and *Cattleya Mossie*, *C. Trianei*, *C. labiata* and others from sub-tropical regions would flower in the greenhouse, but you could not hope to keep them there afterwards in a good state of health. If you could by means of garden-mats, oiled canvas, &c., screen off a part of the greenhouse, and keep it 5° to 6° warmer, and moister than the other part of the house, you could keep these plants there till October. *Odontoglossum crispum* would get into bad health owing to the high degree of warmth of the greenhouse in the summer months, its needs demanding a tempera-

termed "short-spur method," the lateral or side-shoots will be 9 inches to a foot apart, and should not be closer than the first-named. If the space between the rods is 4 feet, the laterals may extend at right angles to the rods till they meet, and then be stopped. That is for Vines before they come into bearing. The laterals that bear bunches are stopped at one joint before the bunch, and in all cases the minor shoots that spring from the laterals must be nipped off at the first leaf. The rod should not be stopped if it be a young one, but allowed to grow on, getting it up to the light, if you can, or fastening it to the wall at the back of the vinery. In fruiting rods it is usual to prevent the growth of the end till the fruit is ripe, and then let it go, as well as allow some little freedom of growth in the laterals. The temperature at night may now be 60°, and by day anything between 65° and 85°, with air given by 7 A.M. and the amount of air increased hourly up to 11 or 12 o'clock, unless the day be cool, when but little air may be afforded. Close the vinery at 3 P.M., damping the floors, walls, &c., and at 8 P.M. open the upper lights an inch or so. Purchase some manual on Vine culture.

COMMUNICATIONS RECEIVED.—*E. Webb & Sons.*—*T. Fletcher.*—*W. Irvine.*—*H. T. M.*—*Edwards, Wood Green.*—*R. D.*—*G. Monro.*—*B. R. D.*—*Visitor.*—*D. T. F.*—*A. D.*—*H. J. G.*—*J. Milburn.*—*J. Waterer & Sons.*—*J. C.*—*J. B.*—*T. F.*—*J. H.*—*H. Turner.*—*T. D.*—*W. J. W.*—*J. C. & Co.*—*J. C.*—*S. G. B.*—*N. E. B.*—*B. Comte Lyon.*—*E. C.*—*J. H. H.*, Trinidad.—*W. N.* (next week).—*J. M.*—*A. H. K.*

(For Markets and Weather, see p. viii.)

